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CONSUMERS' RESEARCH

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THIS NUMBER is one of 9 BULLETINS issued during the year by Consumers' Research which are not confidential. This BULLETIN may be freely discussed with friends. We hope that you will use the opportunity to show them what CR is doing for consumers.

Symbols used to indicate sources of data and bases of ratings:

A—recommended on basis of quality

AA—regarded as worthy of highest recommendation

B—intermediate with respect to quality

C—not recommended on basis of quality

cr—information from Consumers' Research's own tests or investigations

1, 2, 3—relative prices, **1** being low, **3** high. Note that price and quality are completely differentiated in CR's listings; **a quality judgment is independent of price.**

41, 42—year in which test was made or information obtained or organized by the staff of Consumers' Research.

* * *

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Please send notice of any change of address at least one month before it is to take effect, accompanying your notice with statement of your old address before the change. (Doing this avoids the inconvenience and cost of purchasing duplicate copies of the BULLETIN at 30c each, to replace any that may not have been delivered, through a subscriber's failure to notify CR of a change of address.)

Note: For a detailed account of CR's early history, policies, and information as to the answering of special inquiries about commodities, subscribers are urged to read the INTRODUCTION TO CONSUMERS' RESEARCH, which is sent on request to anyone without charge.

Wartime and Consumers—New Problems for Old

TAXES are about to absorb much of the money which consumers used to expend on luxuries and necessities and to improve the appearance and equipment of their homes. The declaration of war has imposed many extra demands upon consumers' time and energies. With these things in mind, a few have mistakenly supposed that consumers may have less need than hitherto for professional or expert advice upon things which they buy.

True it is no longer a case of keeping up with the Joneses or even of keeping up one's present standard of living, but the problem of preventing that standard of living from going any lower than necessary will be constantly present, and an absorbing pursuit for most Americans in the months or years to come.

All or many of the kinds of things that the consumer needs and can use will be changed, for fewer products will be manufactured, fewer choices will be offered him in retail stores, many kinds of goods will be off the market entirely or purchasable only at second hand. Nevertheless, the consumer, with less money to spend, will more than ever need to spend that money wisely—first, so that he shall not pay too much for what he receives, and, second, that what he gets will last well and not need to be replaced unduly soon. What serves the consumer in this respect equally serves the nation's economy as a whole, particularly where it is a question of the better conserving and longer life of goods.

With the present kaleidoscopic changes in the buying situation of every sort of goods, the consumer is going to be the butt of a tremendous amount of misleading information; some of it, as everyone knows by now, will come from governmental sources. In place of tried and tested materials, untried substitutes will very often be used. Many of the changes will involve hazards to health or safety. For example, there have been fifty cases of acute poisoning due to cadmium plating used on refrigerator trays and cooking utensils by shop operators unaware of the poisonous nature of a cadmium coating when used on articles coming into contact with food and drink. The widespread substitution of lead-tin alloys for pure tin, recently ordered, will almost certainly result in injury to many consumers.

Not in any sense of the word have consumers' problems ceased to exist; nor are methods of solving them wanting, even though the government happens to be making tremendous demands upon production and distribution facilities and is taking measures to reduce everyone's consuming capacity, the better to make way for the production of shells and other munitions to be "consumed" by our country's enemies.

Changes in priorities and other governmental policies will be rapid, more rapid in some cases than the consumer can adapt himself to comfortably, but the adaptation can be made much easier and less painful with trustworthy advice and information from an agency which studies each important new development as it impends, and reports upon it as soon as it has become definite and reasonably

[Concluded on page 18, column 2]

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Reconditioned Tires

A New and Major Problem for Consumers

WHILE MANY small businesses—and some large ones too—have suffered serious setbacks due to the sudden onset of a war economy, the business of reconditioning tires enjoyed a soaring boom. Reports indicate that plants equipped to do this type of work were swamped with orders, and periods of from five weeks to two months from the time of placing the order are commonly required for delivery.

Regulations which became effective February 19, 1942, brought recapped and reconditioned tires under the rationing scheme. Fortunately, the list of classes of persons eligible to obtain certificates to purchase reconditioned tires is somewhat broader than it was for the rationing of new tires. The regulations allow such persons not only to buy where they please, but to have their own tires recapped if they so desire. Persons obtaining a recapped tire are required to turn in their worn tire.

There is no doubt that many reconditioning jobs are going to prove very disappointing to their purchasers, first, because of the extremely poor quality of camelback used in replacing the tread. It is generally accepted in the trade that this low-grade material will not give over one-third of the mileage that could be obtained from the present top-grade camelback, and even the top-grade camelback when applied to a perfectly sound carcass will not give much over three-quarters of the mileage formerly afforded by a new tire—even when operated at slower speeds than have been normal in the past and under the most favorable conditions. Second, in many cases workmanship in recapping will have been poor, and the temporary boom which has recently been in evidence will almost certainly have resulted in much corner-cutting to speed up production.

* * *

The terms "retreading," "top capping," "full recapping," "regrooving," and "camelback" will be strange to many consumers who, in better times, would never have considered purchasing any but brand-new tires for their cars. However, since reconditioned tires are to be the only kind available to 99 percent or so of consumers—and even they will be scarcer as time goes on—a full understanding of these terms and of the entire problem involved is important in order that consumers may avoid getting a raw deal or paying an exorbitant price.

Retreading

When a tire is retreaded, the old tread, "breaker strip," and "cushion" are removed entirely, leaving the cord carcass exposed. The carcass is then placed in a dustproof drying room where it is kept from 12 to 36 hours at a temperature of around 120°F until all moisture has been removed. (Failure to do this and thoroughly to clean the surface may mean poor adhesion between the new material and the tire, and result in early failure.)

Next a new cushion and breaker strip are cemented to the carcass, and the cement is allowed to dry. Following this, a rubber compound made of gum rubber, pigments, and reclaimed rubber molded into the form of a strip (called "camelback" in the trade) and of the desired thickness, is cemented and rolled into place. The rolling may be done either by hand or by machine, but it is vitally important that all air pockets be removed to ensure a good bond. The width of this "camelback" strip is such that it covers the tread, and its thin edge extends down along the sidewall to join up with the old sidewall (see Figure 1). A curing

Retreaded Tire. Sectional view. Shaded area at tread shows where new rubber compound is added and cemented to tire carcass, in retreading.

tube similar to the ordinary automobile tube but much thicker is placed in the tire and the entire assembly mounted on an adjustable rim.

It is next placed in a hot mold and the curing tube inflated. The tire is then baked under combined pressure and heat for several hours. This forms the tread, vulcanizes and "cures" the rubber, and provides the bond between the new rubber and the old, through vulcanizing of the cement upon which the camelback, breaker strip, and cushion were laid.

Retreading as a method for tire reconditioning is "out," for the present, because it uses more rubber than the government thinks can be spared at this time.

Recapping or Top Capping

Recapping is used for tires which are worn smooth but not so much worn that the cords are exposed. The tire is placed on a machine by which the original tread is buffed to remove uneven wear and to make the carcass a true circle. It is then dried to remove moisture, and the surface thoroughly cleaned. Two coats of vulcanizing cement are then applied to the buffed surface and allowed to dry. Camelback, of a thickness depending upon the depth of tread to be produced, is next applied to the buffed surface, and the procedure from then on is essentially the same as for retreading. (See Figure 2 for a section of a recapped tire.)

Fig 2

Recapped or Top-Capped Tire. Shaded area shows the new rubber compound added and cemented to tire carcass.

It is obvious that any skimping or careless workmanship in the buffing, drying, or cementing procedures will result in a tire of poor quality that may be subject to early failure. However, tire failure may not always indicate poor workmanship in recapping, for many carcasses may have had concealed or buried defects of a nature which even a highly skilled workman would have missed in making his inspection.

"Full recapping" is essentially the same as recapping, except that a wider strip of camelback is used, resulting in some new material being added to the sidewalls (see Figure 3).

Regrooving

As the name implies, regrooving is merely cutting new grooves into a tire worn smooth. It is, in general, a method of deceiving the customer into thinking that an old tire is much more nearly new than it is in fact. Regrooving has been much used by automobile dealers to give badly worn tires the appearance of having many more miles of life left in them. Far from increasing the life of the tire, regrooving shortens the service life, for not only is the rubber removed and wasted, but one or more grooves are almost sure to be cut too deep at some point, affecting the breaker strip or cords. Such a tire, in any case, is made short-lived and even unsafe, except for the unusually slow and careful driver (see Figure 4).

Fig 3

Full-Recapped Tire. Shaded tread area shows new rubber compound cemented to tire carcass.

It is understood that responsible retreading and recapping stations will not take regrooved tires, being aware of the probability or practical certainty that the cords will have been damaged and the tire irrevocably injured.

* * *

The manufacture of camelback for consumers' cars is now restricted and most of it is being produced in the narrow width, suitable only for recapping (top-capping). This means that the retreading and full-recapping methods which call for wider and heavier camelback will go out of use for passenger cars, for the time being. Only the lowest grade camelback **containing no virgin or crude rubber** is said now to be available for tires of ultimate consumers' passenger cars.

(Previously, the finished job depended for its quality upon the grade and amount of camelback used—also upon the workmanship; it is the amount, of course, which determines the thickness of tread of the finished tire.)

It is not at all certain that there will be a sufficient supply of camelback to take care of the public's needs in reconditioning of passenger-car tires. It **is** certain that consumers should follow immediately the advice of Consumers' Research[1] and that from tire manufacturers on methods for conserving tires, and thereby aim to increase the life of tires now on the road by about 30 percent or more. This, coupled with the limited amount of recapping which will be available, should result in relatively few cars being forced off the road for lack of tires until the end of 1943. It is said that 40,000 tons of crude rubber a year made available for recapping would permit all the cars now on the road to continue for another three years (but note that this assumes careful driving at moderate speed and the proper care of the tires in other ways). By that time our enormous expenditures now being authorized and made for military production, for physical and chemical research, and for the building of special plants for synthetic rubber production by new methods, should be bearing fruit, if these expenditures have been properly and wisely applied.

It will be a service to the nation if consumers will keep their attention focused on these considerations as time passes, to see either that the promises made are fulfilled or that those who failed to make good on the problems of continuing essential services to consumers are brought to an accounting, and their places taken by others who fully accept their responsibilities to the consuming, taxpaying public.

Any governmental agency that takes responsibility for wiping out civilian use of automobiles in a land whose efficiency, alertness, general intelligence, and freedom from offensive regionalism and intolerance have been built upon the availability of ready and flexible transportation and free communication by the millions between city and town and country, should be sure that it knows what it is doing and that the sacrifices demanded actually need to be made in the national interest. It is to be hoped moreover that out of the tremendous expenditures which are being made on supplies and munitions some modest sum (a sum too small to be noticed with present-day governmental 11-figure appropriation practices) shall be set aside for use by qualified chemists and technologists in the Bureau of Standards and in a number of university laboratories to give close and careful study to the problem of reconditioning tires. Such research would require only a fraction of the expenditure of time and professional skills that have been devoted in the past years to large and general trade and international conferences and junkets, and to researches on a wide range of topics that are relatively trivial, or meaningless, from the consumer's standpoint.

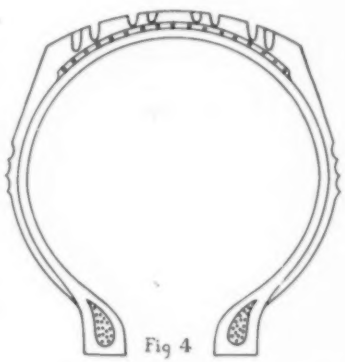


Fig 4

Regrooved Tire. No new rubber compound added, and some of old rubber removed.

Those who believe in governmental planning may well ask themselves why governments, which may be presumed to know something of sea routes and oriental geography, have not planned in peace time for possible rubber shortages. Those who understand the effects of science upon American technology will know that the problem of making tires last longer and of retreading worn ones would on its face be as important a topic of investigation as any governmental academic or research institution could well apply itself to at any time. Yet here is a field in which governmental agencies have in the main been without information and without advice other than "don't use" and "do without." The lack of planned and scientific research preparation for our present large-scale rubber shortage (which might have been predicted in so far as anything involving international relationships can be predicted) will we hope give the governmental planning minds at least some degree of humility for some time to come.

In the meantime, consumers very properly expect that government services will go to

[1] SPECIAL BULLETIN 30—HOW TO CONSERVE YOUR AUTOMOBILE TIRES, 7-page mimeograph, available free on request accompanied by 3-cent stamp.

work on the problem of keeping cars on the road, and perhaps it will not be amiss to remind those most concerned that **this** type of research and development work is not done with publicity releases of officials or the so-called Office of Facts and Figures, but by professionally trained scientists and development men in laboratories and in shops.

Retreading Versus Recapping

There is a difference of opinion as to which method, retreading or recapping, will be the more desirable. Many experts favor the retreading method, claiming that it will give a tire longer and more satisfactory service than recapping.

The other school of thought claims retreading makes tires more susceptible to blowouts than recapping. This argument seems hardly logical, provided the retreading is done with proper care and skill and the carcass is not weakened in the process of removing the original tread. The problem is now purely academic, for the most significant difference between the two methods is the fact that recapping uses less rubber than retreading; the desirability of the method from the consumer's standpoint therefore has had to yield to the problem of making the rubber available serve the maximum number of tires. Recapping is therefore the only method of tire-reconditioning permitted and available at the time of writing this article.

Many Types and Conditions of Tires Unsuitable for Reconditioning

Important Considerations for the Consumer

In general, it is more desirable to have your own tires reconditioned rather than to purchase tires already reconditioned from a dealer's stock. You will know something about the condition of your own tires, whereas used tires supplied by a dealer may be unfit for any further use—will often contain concealed or latent defects which only an expert would know how to find or judge. If you do not have or cannot borrow an extra spare to use while your tire is being worked on, it will be necessary to ride without a spare, and also to have one tire reconditioned at a time. The alternative of laying a car up while the work is being done is more or less out of the question in view of the long wait now being required of persons having retreading or recapping done. It will not be at all surprising, as competition begins to exercise its influence on the business, to find some enterprising firms lending substitute tires for use while the customer's own tires are being retreaded.

Reputable dealers will honestly tell you if your tires are satisfactory for reconditioning. (It should not be assumed, however, that the dealer will not make mistakes, for tire retreading and recapping involve many new problems, and it will take time before all honest men concerned with the trade know all they need to know about judging the condition of a tire offered for treatment.)

The consumer, therefore, should know something about the problem, whether he is sending his tires away to the factory for reconditioning or taking his business to a local concern, the quality of whose work may be quite unknown at the present stage of the trade.

Fourth- and fifth-line tires which contained reclaimed rubber are not suitable for reconditioning. It is even doubtful whether third-line tires are suitable. This leaves only so-called premium or extra grade tires, the so-called first-line, and second-line tires that will of a certainty be suitable for a reconditioning job. As an accepted policy of the trade, tires were not marked with their designations, but merely given brand names which allowed the dealer a good deal of flexibility in representation (and misrepresentation) of the product. Thus the retail list prices were about the only sure means of determining the grade which its maker intended a tire should have, and, of course, the consumer has never had easy access to comparative tables of list and actual selling prices of tires. The so-called first-line tires (actually second grade) are known to the trade as the 100-level tires. These were the grade of tires that in the days when new tires were readily available were sold to customers at retail at $13.70 in the four-ply 6.00 x 16 size, $12.70 for the 5.25 x 17 size, $12.70 for the 5.50 x 17, $16.80 for the 6.25 x 16 and the 6.50 x 16, and $19.05 for the 7.00 x 16. The manufacturer's suggested retail prices for the lower grades were on a scale which ran 90 percent, 80 to 85 percent, 75 percent, 70 percent, 65 percent of the

(Please turn to page 22)

Sheets and Pillowcases

GOOD SHEETS AND PILLOWCASES are fortunately still available, and an investment in a proper and reasonable number of them for future use would seem warranted. This does not mean that CR advocates the purchase of these articles in such quantities as to result in hoarding, as that of itself would create a shortage and tend to contribute to the inflationary price rises which are occurring in many lines of staple goods.

Sheets are an important item of consumer purchase and CR has conducted tests of them at fairly regular intervals. Those included in the present test were either heavy or medium-weight muslin. The heavyweight sheets were tested for compliance with Federal Specification identified as DDD-S-281, which applies only to heavyweight sheets. The test methods were those set forth in Federal Specification CCC-T-191a. All the sheets were also examined for compliance with American Society for Testing Materials Tentative Standard D 503-38T, the most important requirements of which are shown in Table I.

A comparison of these tentative standards with those of the Bureau of Home Economics, quoted in CR's ANNUAL CUMULATIVE BULLETIN, shows that the two agree rather well but that the American Society for Testing Materials recognizes 6 types of sheeting, whereas the Bureau of Home Economics mentions only 5 (true percale, fine-count, and heavy-, medium-, and light-weight muslins).

Purchases of lightweight (Grade C) muslin sheets and sheets noted as "unnamed" in the table are judged inadvisable because of probably poor wearing qualities due to relatively low tensile strength. Good heavyweight muslin sheets will undoubtedly give the longest wear but their extra weight makes them somewhat awkward to handle in the home laundry and more expensive to send to commercial laundries, which often charge by weight. For this reason many housewives prefer either medium-weight muslin sheets or one of the types of percale (usually more expensive than muslin, but cheaper in the long run wherever laundering costs are on a per-pound basis).

Almost no improvement in labeling was noted, the labels in use now bearing great similarity to those noted several years ago, at the time of our last test. However, according to a new ruling by the Office of Price Administration, beginning March 2, 1942, each sheet and pillowcase must bear a label containing:

(a) a statement of size and type (see Table II);
(b) if a "second," a statement of that fact;
(c) the term "substandard" if the piece does not meet minimum specifications shown in the table.

Table I

A. S. T. M. Tentative Standards for Physical Properties of Bleached Wide Cotton Sheeting (Finished)

	Percale	Muscale	Unnamed	Muslin Grade A	Muslin Grade B	Muslin Grade C
Character of yarn	combed	combed or carded	carded	carded	carded	carded
Count, min., yarns per in. Warp	104	94	84	74	68	56
Count, min., yarns per in. Filling	98	84	80	66	60	56
Weight, oz. per sq. yd. max.	4.0	4.0	4.0	...	...	...
Weight, oz. per sq. yd. min.	3.6	3.7	...	4.6	4.2	3.9
Breaking strength, min. lb. (grab test) Warp	60	60	50	70	60	50
Breaking strength, min. lb. (grab test) Filling	60	60	50	70	50	45
Sizing, max. percent	1.0	1.0	1.0	2.0	5.0	8.5

Table II

Standards Recognized by OPA for Four Types of Bed Linens

Specifications	Type 180	Type 140	Type 128	Type 112
Thread count per sq. in. (unbleached)	180	140	128	112
Weight per sq. yd. (oz.)	3.6	4.6	4.0	3.7
Tensile strength (lb.):				
Warp	60	70	55	45
Filling	60	70	55	45
Selvage	Tape	Tape	Tape	Tape
Plain hems (total for both ends)	4"	4"	4"	4"
Stitches per in.	14	14	14	14
Added sizing (max.)	4%	4%	6%	10%

This table states minimum specifications (except for added sizing) for each type.

Maximum prices which manufacturers, converters, or finishers can charge for the types of sheets mentioned in the table, have been established. A comparison of this table with that of the American Society for Testing Materials, whose standards were used in making CR's tests, shows that the 4 types of sheets recognized by the OPA correspond approximately to the "muscale" and the three grades of muslin in the A.S.T.M. table. (It will be noted, however, that the OPA sizing-content requirements are much less stringent than those of the A.S.T.M.)

Wear resistance was determined by measuring the original breaking strength of each sample and then measuring the loss in breaking strength after each sample was subjected to wear on an abrasion machine for a predetermined length of time. This seemed a more useful type of test than the ordinary tensile strength test which has hitherto been the favored and generally accepted method of test for sheets and sheeting.

All samples were measured to determine the amount of skimping below the labeled size, or excess above it. Variations were not judged important in the particular sheets studied, for the greatest percentage of deficiency in area was only 3.6% (found in Sears-Roebuck's *Guest Chamber* sheet).

Selvages were adequate in all cases, with the possible exception of the *Colonial Dame* (Fruit of the Loom) sheet, which had a very light selvage.

The *Guest Chamber* and *Cannon* were the only sheets which exceeded the rather generally accepted lengthwise shrinkage limit of 5%. Sheets of both brands shrank somewhat more than 5% in length, but both increased somewhat in width. The amount of sizing found in all samples was within the specified limits except as noted.

In the listings which follow, a property is to be regarded as satisfactory unless specifically noted as otherwise. Sheets which were medium weight are indicated in the listings. The heavyweight sheets complied with federal specifications unless otherwise noted. Price ratings are based on price per square yard.

Sheets

A. Recommended

Penco (Distrib. J. C. Penney Stores) 63 x 99, $1.23. Wear resistance, good. Weave somewhat "off square." Shrinkage low. **1**

Cooperative Distributors' Cat. No. X4208. 72 x 108, $1.74 plus postage. Found to be *Golden Gate*. **2**

Golden Gate, a Fieldcrest Product (Marshall Field & Co., Inc., Mfg. Div., 82 Worth St., New York City) 63 x 99, $1.50. Wear resistance, good. Weave somewhat off square. Fell short of Federal Specifications requirements in minor respects. **2**

Lady Pepperell (Pepperell Mfg. Co., Boston) 72 x 101, $1.59. Wear resistance, good. Somewhat under marked size. Shrinkage lengthwise, considerable but not excessive. **2**

Pequot (Pequot Mills, Salem, Mass.) 72 x 108, $1.74. Wear resistance, good. Shrinkage, low. **2**

Utica (Utica & Mohawk Cotton Mills, Inc., Utica, N.Y.) 81 x 99, $1.74. Wear resistance, average. **2**

B. Intermediate

Guest Chamber (Sears-Roebuck's No. 96—1955) 81 x 90, $1.10 plus postage. Wear resistance, average. Appreciably under marked size. Shrinkage lengthwise, somewhat excessive. Excessive sizing for sheets of heavyweight (Grade A) muslin. **1**

Mohawk (Utica & Mohawk Cotton Mills, Inc.) 63 x 99, $1.19. Medium weight (Grade B), but not so labeled. Wear resistance, good. Shrinkage lengthwise, considerable but not excessive. **1**

Pacific Heavy Muslin (Pacific Mills, 214 Church St., N.Y.C.) 81 x 99, $1.36. (Bought at company's Chicago office; prices asked in retail stores may be different.) Wear resistance, average. Slightly under marked size. Shrinkage, low. **1**

Treasure Chest (Montgomery Ward's No. 16—9853) 81 x 90, $1.10 plus postage. Wear resistance, poorest of any sample tested. Weave somewhat off square. Excessive sizing for sheets of heavyweight (Grade A) muslin. **1**

C. Not Recommended

Cannon Fine Muslin (Cannon Mills, Inc., 70 Worth St., N.Y.C.) 63 x 99, $1.19. Medium weight (Grade B). Labeled first quality muslin but did not meet requirements of Grade A. Wear resistance, poor. Shrinkage lengthwise, somewhat excessive. **1**

Wearite (Distrib. W. T. Grant stores) 63 x 99, $1. Medium weight (Grade B). Practically identical in quality with *Cannon Fine.* 1

Colonial Dame (Fruit of the Loom, Inc., Providence, R.I.) 72 x 99, $1.34. Medium weight (Grade B), but not so labeled. Wear resistance, average. Selvage judged probably unsatisfactory. 1

Pillowcases

Pillowcases were rated on the same qualities as sheets and were examined for compliance with Federal Specification DDD-P-351. Some variations from the labeled size were found but were judged unimportant except as noted. Comments are made in the listings on particular features.

A. Recommended

Penco (Distrib. J. C. Penney stores) 42 x 36, 35c. End seam left with raw edge, which might ravel. 2

Utica (Utica & Mohawk Cotton Mills, Inc., Utica, N.Y.) 45 x 36, 39c. Very well made. 2

Pequot (Pequot Mills, Salem, Mass.) 45 x 38½, 47c. Somewhat under nominal size. 3

B. Intermediate

Guest Chamber (Sears-Roebuck's No. 96—1965) 42 x 36, 51c per pair plus postage. End seam left with raw edge. 1

Mohawk (Utica & Mohawk Cotton Mills, Inc., Utica, N.Y.) 42 x 36, 27c. 1

Treasure Chest (Montgomery Ward's No. 16—9859) 42 x 36, 51c per pair plus postage. 1

Cooperative Distributors' Cat. No. X4258. 42 x 36, 43c plus postage. Found to be *Golden Gate.*

Golden Gate (Marshall Field & Co., Mfg. Div., 82 Worth St., N.Y.C.) 45 x 36, 40c. Considerably under nominal size. 2

Lady Pepperell (Pepperell Mfg. Co., Boston) 42 x 36, 39c. End seam left with raw edge. 2

C. Not Recommended

Cannon Fine Muslin (Cannon Mills, Inc., N.Y.C.) 42 x 36, 32c. 2

Colonial Dame (Fruit of the Loom, Inc., Providence, R.I.) 42 x 36, 31c. Well made. Somewhat under nominal size. 2

Wearite (Distrib. W. T. Grant stores) 42 x 36, 58c per pair. Apparently identical with *Cannon Fine.* 2

Save Your Anti-Freeze

COMMON TYPES OF ANTI-FREEZE used in automobile radiators are ethylene glycol (typified by *Prestone* and *Zerex*), denatured ethyl alcohol (or ethanol—for example, *Super Pyro*), and glycerin (the latter, however, on account of its scarcity and importance in munitions manufacture is now little used and practically unavailable). Methanol (wood alcohol) has also been much used, though it is not recommended by Consumers' Research on account of the extreme toxic properties of it and its fumes.

If the anti-freeze in your car is any one of these, it should be saved for use in following winters, on account of the present national emergency and the likelihood that stringency of supply on any and all of these materials, and even of possible substitutes for them, will become worse. Some motorists leave so-called permanent anti-freezes, such as ethylene glycol, in the radiator during the summer, but this practice has the disadvantage of some increased danger of loss of anti-freeze.

Gallon glass jugs or the 8- or 10-quart cans in which automobile crankcase oil is sold make suitable containers for storage. If cans are used, exceptional precautions should be taken to prevent their rusting out at the bottom; they are not meant for long storage of liquids high in water or other corrosive substances. Any can used should be placed on a dry wooden shelf or clean dry board or other wooden surface, well above the ground or a concrete floor, and out of reach of water or dampness. Whatever you use for storing the anti-freeze solution, label it carefully and plainly with the name and origin of the material, a poison warning, and the date. Be sure that the container is not later put to use for storing any food or beverage.

Before the radiator solution is used again, it should be tested with blue litmus paper or some similar indicator which shows whether it is free from acidity. If blue litmus paper turns red when immersed in the solution, a small amount (e.g., 1 ounce) of washing soda (sodium carbonate) should be dissolved in the solution, just sufficient to prevent the blue litmus paper from turning red. It is desirable also to add 1 ounce of sodium chromate (or 1 ounce of sodium dichromate plus 1/3 ounce of sodium hydroxide [lye]) as a corrosion inhibitor. A corrosion inhibitor, incidentally, is a desirable addition to the water in the radiator, for summer as well as winter use.

Preservation of Tires and Other Rubber Goods in Storage

SEVERAL INQUIRIES have been received by CR asking for information on the best method of storing rubber goods (tires in particular) when not in use. Methods of storage which exclude the air, i.e., by placing under a solution of alcohol and glycerin in water, or in a salt solution, have been discussed in trade literature, and while such methods admittedly have some value, the general consensus of opinion is that they are not ordinarily worth the time and expense which they entail.

The best procedure for the consumer to follow is to store all rubber articles not in use **in a cool, dark place** (maximum storage temperature should if possible not exceed 70 or 80°F). The articles should be wrapped in several layers of brown, black, or other dark paper, to exclude light and air. Air, and especially air in motion, has a destructive effect on all rubber goods. Dampness does not have any harmful effect on them, provided there is no fabric exposed. If there is exposed fabric in the article (as in a tire that is badly worn), the moulds which thrive in dampness will probably bring about grave weakening or complete destruction of the cotton or other fibers. Cool and dark and well-wrapped, should be the rule with all rubber goods. They should also be kept free from any possible contact with grease or oil, either at the time of storage or due to some accident, or leakage of a nearby can or drum that might occur afterwards.

The attic is the worst possible place in which to store tires and other rubber goods (except in winter, with an uninsulated roof, where the temperature in the attic is always lower than in the rest of the house). The basement or a cold-room or closet in the house which is not served by the heating plant is the best. (Those who have a cold-cave or root-vegetable storage space outside the house may well use it for storing rubber goods that have no exposed fabric.)

Perhaps we should remind our readers that under present conditions tires should not be stored in out-buildings, barns, or any other place where they are not safe against theft. Better spare some space within the house or keep them in a place that can be securely locked, since the problem of stealing and hijacking tires may become serious during the coming period of extreme rubber scarcity.

Garden hose and tubing and other types of rubber tubing should never be hung from nails for any length of time. They should be smoothly coiled in order to prevent kinks or sharp bends, and suspended by a paper or cloth band used as a wrapping, to spread the contact.

Rubber hot-water bottles should be slightly inflated before storing, to prevent the sides from sticking together.

Rubber raincoats, boots, and galoshes should not be left folded, nor stored in a closet before they are dry. They should be carefully dried at room temperature, never on or close to a radiator or stove. Rubber footwear used in farm work should be rinsed well with water before drying. Hanging rubber raincoats in a garment bag that excludes the light will preserve them better than folding and wrapping them in brown paper. Use wood hangers only.

The soles of rubbers and galoshes should be carefully inspected after each wearing, and any imbedded grit, cinders, or small stones should be removed with a stiff brush, as an aid to lengthening their life.

Rubber articles which must be stored folded (e.g., rubber sheeting, bathing caps, etc.) should be liberally sprinkled with talcum powder to prevent adhesion of the surfaces in contact.

At all times keep rubber goods out of contact with corroded or rusty metal; any such contact hastens deterioration due to aging.

* * *

Tires on cars continually exposed to the weather (i.e., not kept in a garage) should be protected by coating with a synthetic (black) rubber paint (**not** a paint of any ordinary or conventional type).

1942 Console-Model Radio Receivers

A SPECIAL EFFORT was made this year to complete the test of console-model radio receivers as early as possible, due to the unsettled condition of the radio market. It was soon discovered, however, that some sets which were being widely advertised nationally were not actually obtainable when ordered; in some cases, months elapsed before certain models could be delivered. Although deliveries may be slow, the present prospect is that new radio sets and phonographs will continue to be available for the next few months. Very recently the War Production Board ordered, for the present, a monthly curtailment in production of about 40 percent below the monthly output attained during the first nine months of 1941. This order has now been followed by a warning that production of radios and radio-phonographs for civilian use may be stopped entirely in April of this year (partly to provide, on U. S. government order, 1,000,000 cheap sets for Latin-American consumption). However, sets on hand should provide a reasonable supply for home consumption during the summer months, unless a rush of consumer buying is occasioned by knowledge of the coming stoppage of production.

CR hopes to offer in the future valuable aid to those of its subscribers who will need to purchase a radio receiver after new sets are no longer available.[1] CR will closely study the secondhand radio market with a view to advising the consumer just how to go about the purchase of a good used radio. In the meantime, we would like to have letters from subscribers having a strong interest in radio problems, informing us whether or not there is a substantial and active market offering used sets for sale at low prices (say from $3 to $15 or $20) in their town or city.

[1] Many inquiries are still received for information on building the high-fidelity amplifier which was discussed in our BULLETIN of February 1938, and the later and somewhat improved high-fidelity amplifier, also adapted to be built by a serviceman, referred to in the ANNUAL CUMULATIVE BULLETIN, September 1941, col. 169. Probably in no other subject discussed by CR have subscribers shown so long continued an interest.

Sets Tested by CR

Sets in the present test were, for the most part, phonograph combinations, some of which were equipped for reception of the new frequency modulation (FM) broadcasts. All had provisions, of course, for reception of the conventional amplitude modulation (AM) signals. In the case of the AM-FM combinations, it is CR's considered opinion that the most warranted purchase at the present time is a set **without** built-in FM equipment. If FM programs are wanted and available, an FM converter for attachment to, and reproduction of broadcasts through, the audio amplifier unit of a conventional AM set of good sound-quality can be purchased. However, for the benefit of those subscribers who do not approve of the "two-piece" approach, we included in our test a number of AM-FM combinations.

Factors Considered in Judging Sets

In judging a radio set, at least any radio set in the price classes above $30 or $40, quality of reproduction must be taken as of **major** importance. This is affected by a number of factors; in fact, there are few faults which the radio receiver can have and few changes or adjustments made in it which will not affect the quality of sound reproduction in one way or another.

Frequency Response

To take up briefly a few of the more important factors, first consider frequency response, or the ability of the set to reproduce a range of tones. This is commonly measured by introducing into the set a radio-fre-

quency signal carrying only a single audio tone, but otherwise similar to the radiation sent out by the broadcasting station. This controlled "modulated" radiation is fed into the antenna circuit of the receiver, and the testing engineer or physicist determines one of the most important aspects of receiver performance by measuring the loudness of the tone the set delivers from its loud-speaker as the pitch of the audio tone is varied from the low bass to the highest treble.

In this way the expert determines not only the range of tones the set can reproduce, but also detects faults in the amplifier and loud-speaker which give false emphasis or exaggeration to tones in certain parts of the range of approximately 30 to 15,000 cycles which an ideal set would be able to reproduce well. Experiment shows that the audio response of a receiver can be reduced to the range 50 to 7,500 cycles without seriously affecting the reproduction of orchestral music, and the existence of the change may not be noticed by the average listener (at least unless he is given the opportunity to hear the identical music with the top frequencies lopped off and then with them present).

In the ratings which follow, two sets of figures are, as a rule, given for frequency response, designated by the terms **electrical** and **acoustical.** The **electrical** figures indicate range of frequencies delivered by the set as alternating electrical currents to the loud-speaker; the **acoustical** figures include the action of the loud-speaker, with its varying efficiency and distortions.

Power Output

The power output of a receiver would be of little consequence if only high tones were to be reproduced, for they can be sounded at a satisfactory volume level with a fraction of a watt delivered to the loud-speaker. On the other hand, to reproduce low tones with sufficient or realistic loudness to the human ear, very considerable amounts of power are needed, estimated by some authorities up to about 15 watts. This figure of 15 watts is somewhat difficult to achieve with tubes and associated equipment of mass-produced types, at least in the low- or moderate-priced field, and even manufacturers of high-priced sets seem, with one or two exceptions, to avoid using power tube circuits and tubes capable of producing this value of electrical output to the speaker. In view of these circumstances, CR has adopted the figure of 10 watts electrical input to the loud-speaker as a workable compromise.

As sets are currently made, it is an unfortunate fact that many receivers deliver a greater output (with little or no noticeable distortion) at about 400 cycles than at, say, 25 to 100 cycles where substantial power output is really needed. In the ratings, power output figures have been given at several frequencies in order to show how well the set performs in respect to the factor just discussed. For brevity, the term "undistorted power output" has been used to describe the maximum output with little or only barely measurable distortion.

Tone Quality

Smoothness of loud-speaker response, lack of cabinet resonance, absence of waveform distortion, and a number of other factors are also important in any judgment of a set's reproduction. All of these factors, together with the opinion of an expert at the conclusion of a careful listening test, are lumped together under the remarks on "tone quality" in CR's ratings. The experts agree that a listening test is necessary for final judgment of receiver quality, for a set may give a measured performance that seems very good, yet lack something in the way of realism and pleasantness of tone.

Selectivity

No one wants his programs marred by interference, and yet it is an undeniable fact that if a set is highly selective, the reproduction of the high-frequency (treble) sounds, necessary for the life-like reproduction of music, is seriously restricted.

High Selectivity Incompatible with Good Fidelity

Let this be clear; you can't have **both** high selectivity and good fidelity. Razor-sharp selectivity, which some manufacturers and dealers have boasted of in respect to their sets, has always been achieved—can only be achieved—at the cost of faithful reproduction of the higher frequencies in music. (As a practical matter, the excess selectivity in many sets, perhaps in nearly all of the poorer sets, is not objectionable from this standpoint since the high frequencies would not be

well reproduced anyway; it is only in the exceptionally good radio receivers that the amplifying system is of such quality that the top frequencies are not lopped off by the time they get to the loud-speaker.)

Prevalence of Defective Sets

This year, even more than in previous years, sets received for test were usually not in correct working order as received from their makers or dealers. In some cases the defects were minor (that is minor from the standpoint of the manufacturer but not the consumer), consisting, for example, of poor electrical "alignment" or adjustment of the set. In other cases sets were actually inoperative or had faults which required changes in design to correct. Since it appears from the above conditions that factory inspection seems to consist usually of only a cursory or casual examination, subscribers should take every precaution in buying a new set, to ensure, through a written agreement, that the dealer will accept responsibility for putting the set in correct working order, or will replace the set, if defective, with a satisfactory model.

* * *

Sets in the following listings were, with one exception, radio-phonograph combinations—some were also equipped for reception of FM signals, as indicated. Prices given were those current at the first of the year; price changes may be expected in some cases. Where number of tubes is given, the number, for brevity of statement, is made to include the power rectifier, and in some cases voltage regulator tubes. All sets were console models of the superheterodyne type and were intended for operation only on 110-120-volt alternating current. Where "r.f. amplifier" stage is mentioned in the listings, this refers to a desirable feature that helps to eliminate noise and interference. Ratings are cr42.

A. Recommended

Airline, Montgomery Ward's No. 162—1203. $159.50 plus shipping charges ($184.50 at retail stores). 12 tubes, including tuning indicator. Equipped for reception on standard (AM) broadcast and short wave bands. Had automatic record changer, six-station push-button tuning, built-in rotatable loop for the broadcast band and special built-in antenna for short wave, bass and treble tone-controls, and desirable r.f. (radio frequency) amplifier stage. ¶Tone quality considered good, but could be improved through use of better loud-speaker system. Had excellent maximum over-all frequency response (tonal range): (electrical) 25 to 11,000 cycles; (acoustical) 25 to 7000 cycles. The latter range represents good performance for a set with a single speaker. Undistorted power output, 8 watts at 400 cycles, 7 watts at 50 cycles, 2.5 watts (low) at 25 cycles. Set was equipped with 12-in. speaker of fair-to-average characteristics. (For those wishing to make the most possible out of this set, installation of a *Jensen JCP-40* speaker is suggested. This unit is sold by cut-price dealers at about $20; it should make this receiver satisfactory for reproduction of FM programs, by use with FM converter.)

Sensitivity of set was good on standard broadcast and some short-wave bands, very good on others. Set as received was somewhat out of alignment, which may have reduced its sensitivity. Selectivity, variable by means of selectivity control (desirable), would probably be satisfactory for most locations (fairly sharp-tuning in "sharp" position). Correcting alignment and certain other minor changes would probably bring about considerable improvement and reduce susceptibility to trouble with whistles or squeals in some locations. Automatic volume-control action, satisfactory. Residual noise (hum, etc.), low—only slight hum noticeable. Had desirable inverse feedback circuit. Electrical safety, good. Quality of parts and workmanship, both good. Ease of servicing considered average. Cabinet ruggedly constructed and of much better quality than usual for sets in this price class. Record equipment consisted of automatic changer, handling either 10- or 12-in. records (but not mixed sizes), and permanent stylus low-needle-pressure (1¼ oz) pickup. This set is considered to be an excellent purchase for anyone who desires the best performance probably available in a moderately priced radio-phonograph combination. **2**

Ansley Dynaphone, Model 61 (Ansley Radio Corp., 21-10 49th Ave., Long Island City, N.Y.) $350. 21 tubes, including tuning indicator. In addition to the conventional AM broadcast-band and short-wave equipment, set was equipped for FM reception (same set also available without FM at reduced price—$285). Had automatic record changer, bass and treble tone-controls, dual speaker, selectivity control, built-in loop antenna, and r.f. amplifier stage. ¶Tone quality considered very good—had exceptional fullness (naturalness) of tone with a marked lack of distortion. Maximum over-all frequency response: On AM (electrical), 25 to 6500 cycles—fairly good. On FM (electrical), 25 to 15,000 cycles—excellent; (acoustical), 55 to 15,000 cycles—wide range, but there were 2 or 3 regions with pronounced dips in response. Tone-controls rather ineffective but may be satisfactory for most users. Undistorted power output, very good—16.5 watts at 400 cycles, 10 watts at 25 cycles. Dual speaker (*Rola* G-12 with 5-in. tweeter) consisted of separate high-frequency and low-frequency units in coaxial arrangement.

FM portion of set developed trouble before test was completed. *A. Recommended* rating therefore applies only to set without FM (set available without FM at $285, as noted).

Sensitivity on both AM broadcast and short-wave

Ansley Dynaphone, Model 61 (continued)
bands, good. Selectivity of this set, variable by means of selectivity control (a desirable feature), was satisfactory. Automatic volume-control, satisfactory. Had desirable triode output tubes, which are rarely found nowadays even in the highest-priced sets. Electrical safety not ideal, but satisfactory. Quality of parts and workmanship, both good. Servicing considered somewhat difficult due to compactness of arrangement in cabinet. Cabinet good—ruggedly constructed. Phonograph equipment of set tested consisted of *General Industries* record changer with pickup having rather high (3 oz) needle pressure. It is considered that set would be much more satisfactory for phonograph record reproduction if equipped with pickup of lower (1 to 1½ oz) needle pressure, which maker can supply. 3

Philharmonic Electra (Philharmonic Radio Co., 21 West 45, N.Y.C.) $390.60 (available with FM equipment at $453). 15 tubes, including tuning indicator. Equipped for reception on AM broadcast band only. Had automatic record changer, bass and treble tone-controls, dual speaker system, selectivity control, and r.f. amplifier stage. ¶Tone quality considered very good. Maximum over-all frequency response (electrical), 20 to over 10,000 cycles. Had tone-controls of good design. Undistorted power output, 20 watts at 400 cycles, very good. Speaker system consisted of 15-inch low-frequency unit, mounted in "acoustic compartment" or enclosure, and a high-frequency speaker.

Sensitivity, very good. Selectivity, variable by means of four-position selectivity control considered very satisfactory and should make this set usable for both local and distant reception, with good results. Superior, advanced design of tuning indicator circuit. Automatic volume-control action, good. Set had desirable inverse-feedback circuit. Set exceeded allowable limits for electrical leakage current, hence should be used with well-installed ground connection. Receivers and cabinets of this concern have been consistently found to be ruggedly constructed, with parts of good grade. Phonograph equipment consisted of *Philharmonic Featherweight* record changer with permanent stylus, low needle-pressure pickup. (Also available with single-record player and *Brush* PL-25 pickup, at same price.) Rating of this set based on expert listening test, plus test data from qualified independent laboratory submitted to CR by manufacturer.

When purchased as AM-FM combination, FM equipment consists of *G.E.* nine-tube *Translator* (converter), built into cabinet. CR expects shortly to issue a report on this unit, which preliminary tests have shown to be of very good performance. 3

Stromberg-Carlson "Autograph," Model 935-PL (Stromberg-Carlson Telephone Mfg. Co., Rochester, N.Y.) $390. 16 tubes, including tuning indicator. In addition to the conventional AM broadcast-band and short-wave equipment, set was equipped for FM reception. Had automatic record changer, bass and treble tone-controls, push-button tuning, single speaker with *Stromberg-Carlson* "Labyrinth," built-in loop antenna for AM broadcast reception, and special built-in short-wave and FM antenna. Had desirable r.f. amplifier stage. ¶Tone quality considered very good on FM; fairly good, though response range undesirably restricted due to selectivity, on AM (discussed in text). Maximum over-all frequency response: On AM (electrical), 25 to 5200 cycles; (acoustical), about the same. On FM (electrical), 25 to 15,000 cycles—excellent; (acoustical), 40 to 11,000 cycles—very good for a single-speaker set. (CR considers that a high-fidelity receiver should handle frequencies on AM to 7500 cycles or higher. Any subscribers interested in the best possible musical reproduction will wish to compare response of this receiver carefully with other sets offering a more extended AM range, to note whether they mind loss in this set of about ½ octave in the treble.) Undistorted power output, very good—15 watts at 400 cycles, 12 watts at 25 cycles.

Sensitivity on both AM broadcast and short-wave bands, very good; on FM, good. Selectivity satisfactory, tending to be somewhat sharp tuning but relatively free from whistles or squeals. Automatic volume-control, satisfactory. Residual noise level (hum, etc.), desirably low. Had desirable inverse feedback circuit (definitely needed with beam-power type output tubes). Electrical safety, good. Push-button tuning provided for selecting a total of 8 stations on the standard broadcast and FM bands, the change from standard broadcast to FM being made simply by pushing a button corresponding to the station desired—a convenient feature. The action of the push buttons on FM was not fully satisfactory, however. Quality of parts and workmanship, both good. Considered relatively easy to service. Record equipment consisted of automatic record changer equipped with pickup having desirably low (1 oz) needle pressure. Phonograph circuit had provision for reproducing new records offering extended high-frequency range with low surface noise, said now to be in the developmental stage and possibly soon available to consumers. 3

B. Intermediate

Silvertone, Sears-Roebuck's No. 57—7069. $114.50 plus shipping charges. 10 tubes. Radio-phonograph combination. Tone quality fairly good though treble somewhat exaggerated, probably due to speaker fault. Over-all frequency response (electrical), 30 to 5500 cycles—restricted; (acoustical), 40 to 6500—superficially good, but top treble response gained by undesirable speaker action. Undistorted power output, 7 watts at 400 and 100 cycles—distortion below 70 cycles. Set lacked desirable inverse feedback circuit, and had certain other faults. Sensitivity good on both broadcast and short-wave bands. 1

General Electric, Model LF-115 (General Electric Co., Bridgeport, Conn.) $164.95. 11 tubes. In addition to the conventional broadcast-band and short-wave equipment, set was equipped for FM reception. Had push-button tuning, bass and treble tone-controls, built-in loop antenna for AM broadcast-band and short-wave reception, and special built-in FM antenna. Had desirable r.f. amplifier stage. ¶Tone quality fair, deficiency being evidently due to somewhat unsatisfactory speaker system. Maximum over-all frequency response: On AM (electrical), 25 to 6000

[Concluded on page 20]

Producing and Storing the Home Food Supply

IN THESE DAYS of press releases following swiftly upon each other from the Nation's Capital, the suburban or country dweller may be pardoned for being in doubt as to whether he should cultivate his home food supply intensively this spring and summer, or whether the effort might better be spent in other civilian defense activities.

After a careful survey of the situation, it is CR's opinion that consumers will be wise to grow a considerable portion of their normal food supply if they are situated so that they can do it efficiently and economically. It is not the time for plowing up the front lawn to plant corn and beans, and there is no doubt that this country, by better use of existing farm areas, and by putting an end to AAA crop restrictions and programs for diverting foods to non-food uses, is capable of growing enough food to supply the needs of all our own citizens with something to spare. On the other hand, there has been such a decided fast-mounting trend toward disruption by government orders of normal services of industry and commerce to consumers that reliance on currently existing marketing procedures has become a little dubious at best.

The housewife who wishes to recapture that pleasant self-sufficient feeling of her grandmother or great-grandmother who could look around her cellar shelves and see most of the family's winter food supply in jars, barrels, bins, with root vegetables stored in boxes of sand, may do well to look into the problem of canning a large part of her family's normal supply of fruits and vegetables, and investigate other methods of storing and keeping foods, too. In some localities which are situated close to farm markets, it may be more efficient to purchase the fresh grown fruits and vegetables rather than attempt to raise them at home, for the commercial growers work more efficiently than amateur gardeners, and have the needed tools and supplies ready at hand.

One of the first steps toward winter storage of fresh and canned foods is to make a survey of the farm products likely to be available. List carefully your family's likes and dislikes. There is no point, for example, in canning an abundance of tomatoes if your family has only a limited liking or tolerance for them. Poorly planned canning may result in much waste of energy, good food materials, fuel, and supplies.

If you have decided to put in your own garden, write to your state experiment station for their advice on the particular varieties of seeds and plants which grow best in your state and locality. In rural communities, the county agricultural agent or other representative of the state and county experiment station and farm advisory service, or perhaps the local teacher of vocational agricultural subjects, will help by looking over your proposed garden site and advise you on what is best to plant in your soil and with your lay of the land. A list of the addresses of various state experiment stations will be found at the end of this article. It should be stressed that there are many cases where the growing of fruits and vegetables will not be practicable on the land which is intended to be used, for the soil may be of an unsuitable type for the things which one would want to raise.

It is not too early to make plans for storing your winter supply of fruits and vegetables, whether you raise them or buy them. The county, state, or local agricultural adviser or your state agricultural college will also be able to supply you with pamphlets giving advice on the most suitable types of storage for the produce and climate of your particular state. Such pamphlets are usually free to residents of a state, and occasionally are available to others. Three very helpful ones that have come to our attention are: "Home Storage of Vegetables," by C. L. Fitch, Extension Circular 249, Iowa State College Extension Service, Ames, Iowa; "Home Storage of Vegetables," by William R. Cole, Leaflet 34, Extension Service, Massachusetts State College, Amherst, Mass.; "Home Fruit

Two-piece metal cap requiring no separate rubber, which uses instead a ring of sealing composition recessed in the metal lid.

and Vegetable Storage," Extension Bulletin 209, Extension Service, State College of Washington, Pullman, Washington.

In addition to your state experiment station's advice on home canning methods, information will be found in "Home Canning of Fruits, Vegetables and Meats"—Farmers' Bulletin 1762 (5c from Superintendent of Documents, Washington, D.C.).

Part of the problem of planning proper storage of fruits and vegetables consists in selecting suitable and effective canning equipment. One of the most desirable pieces of equipment is a pressure canner, such as the *Kook-Kwick*, which has been available from Sears-Roebuck (in their Spring-Summer catalog) at $10.95 to $16.95, according to size.

In view of the fact, however, that the supplies of several basically important metals are being pretty well shut off from manufacturers of consumers' goods, it may be difficult to secure one of these pressure canners; and if you are not planning to can extensively, you should not purchase one and so take out of use a utensil which may be badly needed by a person who must do a considerable amount of canning. In some localities arrangements may be satisfactorily made to pool the use of a pressure canner, although it often happens that crops in a particular locality come to the canning stage at about the same time, and it may turn out that several will want to use the canner on the same day. Tomatoes and acid fruits (cherries, berries, peaches, plums, apricots, pears, rhubarb, etc.) may be safely canned at home without a pressure cooker.

A number of different types of glass jars are available for home canning. In a study made by Consumers' Research some years ago, it was found that the standard *Mason* jar, with one of the modern capping arrangements consisting of a two-piece metal cap (lid and retaining band) with a ring of sealing composition in the lid so that no separate rubber is required, was one of the best. It was the easiest of all types tested with which to obtain a reliable seal. This type of closure had the further advantage of making possible the use for canning of any screw-top jar on which the top lid will fit properly, such as many commercial pickle, mayonnaise, and peanut butter jars.

Jar tops found to be most efficient in the test made by Consumers' Research in 1937 were:

Kerr Two-piece Metal Caps (Kerr Glass Mfg. Corp., Sand Springs, Okla.) Montgomery Ward's No. 86—2228 and 86—2229. 24c per doz complete plus postage. Top-lids only (the flat part containing sealing composition), 10c per doz plus postage. May be used with the other two brands of screw caps or bands listed and are apparently widely distributed. Sears Roebuck's No. 11—5674 and 11—5672. 25c per doz complete plus postage. Top-lids only, 11c per doz plus postage.

Crown Two-piece Metal Caps (Crown Cork & Seal Co., Baltimore) 19c per doz. Similar to *Kerr*.

Atlas Two-piece Metal Caps (Hazel-Atlas Glass Co., Wheeling, W. Va.) 35c per doz. Similar to *Kerr*, but disc enamel-coated.

If you are planning to do any extensive canning, it will be wise to look into the problem of getting supplies, since there has been some suggestion that needed supplies of canning rubbers, glass jars, and tops may be difficult to obtain. On the whole it can be assumed, however, that the materials needed for home preservation and storage of food will be made available if possible, and quite likely jar rubbers or something that will serve the purpose will be made of substitute materials as research makes them available. Possibly wider use can be made of reclaimed rubber or some similar material than has hitherto been assumed possible. Before making your purchases, it will be wise to budget the number of jars of different varieties and the amount of fruits and vegetables to be stored which will carry your family through

the year, so that you won't be buying more of anything than will be actually needed and useful in your canning and preserving. The little leaflet on Home Storage of Vegetables put out by the Extension Service of Massachusetts State College, for example, gives a canned food budget for one person for a year. Such a list is of course to be regarded as of general guidance value only, for the problem is altered greatly by local conditions and customs, individual health and appetite, and the homemaker's own energy, taste, judgment, and skill in canning, pickling, and preserving.

VEGETABLE BUDGET FOR ONE PERSON FOR A YEAR*

Prepared by May E. Foley, Extension Nutritionist

	Number of servings	Amt. to be used Fresh	Amount to store or can out-of-season months Canned	Stored
Asparagus	Choose one five times a week	2 lb	3 pt	
Cabbage**		10 lb		15 lb
Greens***		15 lb	15 pt	
String beans		8 lb	8 pt	
Peas		½ bu	6 pt	
Celery		2 lb		5 lb
Lettuce or other salad greens		15 lb		
Tomatoes	Twice a week at least	25 lb	30 pt	
Carrots	Choose one daily	15 lb	7 pt	20 lb
Beets		10 lb	5 pt	10 lb
Squash		10 lb		20 lb
Onions		12 lb		25 lb
Corn		30 ears	4 pt	
Rutabagas, Kohlrabi, Parsnips		10 lb		25 lb
Potatoes	Once or twice a day	60 lb		180 lb

* Multiply by number in family to obtain family budget.
** Some of the cabbage may be made into sauerkraut.
*** Greens include spinach, New Zealand spinach, Swiss chard, kale, beet tops, and wild greens.
Estimate allows for four servings per pint of canned vegetables.
If no storage is provided, add to canned vegetables:

Greens	8 pt	Carrots	15 pt
String Beans	5 pt	Beets	17 pt
Peas	3 pt	Corn	12 pt
Tomatoes	12 pt		

The canning budget should also include at least 25 pints of canned fruit and not more than 10 pints of jam, jelly, and pickles for each member of the family. Sweet pickled peaches and pears may be counted as canned fruit. The fruit should be of kinds that are home grown, gathered wild, or bought at reasonable prices.

Canning of meat is a problem for the experienced home-canner, and is a job best not undertaken the first year. Home canning of meat is economical, as a rule, only where the meat is raised on the farm. The preservation of meat by smoking, dry salting, or brine curing calls for a great deal of skill in order to turn out palatable results.

The use of refrigerated lockers for quick freezing of home-killed meat is also becoming popular in some sections of the country, and should be looked into by those who have access to a cheap supply of meat locally killed at certain seasons of the year. Home preparation and storage of the family's supply of meat should be studied with great care. Before undertaking it, if you are inexperienced in the problems involved, get all the information possible from state experiment stations and study it thoroughly. If you are in doubt where to write, you will as a rule be safe to address your nearest state agricultural college, for the experiment station, home demonstration advisers, farm agents, and others concerned with rural producers' and consumers' problems usually work in close cooperation with the agricultural college staff.

Home baking, on the other hand, is a custom of our grandmothers which might well be cultivated again as an effective contribution to the family's diet. The novice will find very helpful "Homemade Bread, Cake, and Pastry," Farmers' Bulletin 1775 (5c from the Supt. of Docs., Washington, D.C.). The use of unbleached flour and particularly the new nutritionally improved, so-called enriched, flours, which contain large percentages of the wheat germ, very definitely contributes to good family diet, as compared with the conventional diet of bleached and chemicalized bread as usually sold by the big commercial bakeries, especially the great bakery systems that have a wide distribution territory.

Some of the nutritionally improved flours include: *Vibic* (General Mills, Inc., Minneapolis); *Vito Wheat* Product (Pillsbury Flour Mills Co., Minneapolis); *Germako* (Fisher Flouring Mills Co., Seattle); *Melior* Flour (Victor Flour Mills, Pittsford, N.Y.); *Rich-Heart Wheat Germ* Flour, Unbleached (The Morris Mills, Inc., 111 West Jackson Blvd., Chicago).

The beginner will not find the making of bread difficult, although it does confine one to the home for several hours at a time be-

tween the period when the bread is first mixed and the time when it comes out of the oven.

The housewife who undertakes to supply her family with home-baked bread should be warned that they will probably eat twice as much as has been their custom hitherto, because of the great superiority in flavor and texture of the homemade product.

From time to time in the past, many groups have spoken up here and there advocating home industry and self-sufficiency of the family's food supply. Heretofore, the approach has been largely that appropriate to a hobby or fad, and the question has not been given serious attention by any large section of the population. The dislocations by the speeding up of war production are likely to be so far-reaching that the far-sighted housewife will at least prepare herself to undertake the problem of having on hand a goodly part of her winter's food supply of staple fruits and vegetables, flour, molasses, eggs preserved in water glass, and many other items, in order to be reasonably ready for any emergency.

A saving in the family budget can be effected if eggs are put down in water glass when they are plentiful and low in price, for use when prices go up. This is very easily done and directions will be found, for example, in "Milk and Eggs for Growth and Health," by May Haddon, Extension Bulletin No. 97, Mississippi State College, State College, Miss.

Helpful advice on home gardening, canning, home baking, preserving and storage of eggs will likely be available to residents from any of the following Agricultural Experiment Stations:

Alabama—Auburn
Alaska—College
Arizona—Tucson
Arkansas—Fayetteville
California—Berkeley
Colorado—Fort Collins
Connecticut—
New Haven, Storrs
Delaware—Newark
Florida—Gainesville
Georgia—
Experiment, Tifton
Idaho—Moscow
Illinois—Urbana
Indiana—La Fayette
Iowa—Ames
Kansas—Manhattan
Kentucky—Lexington
Louisiana—University
Maine—Orono
Maryland—College Park
Massachusetts—Amherst
Michigan—East Lansing
Minnesota—University
Farm, St. Paul
Mississippi—
State College
Missouri—Columbia,
Mountain Grove
Montana—Bozeman
Nebraska—Lincoln
Nevada—Reno
New Hampshire—
Durham
New Jersey—
New Brunswick
New Mexico—
State College
New York—
Geneva, Ithaca
North Carolina—
State College
Station, Raleigh
North Dakota—
State College Station,
Fargo
Ohio—Wooster
Oklahoma—Stillwater
Oregon—Corvallis
Pennsylvania—
State College
Rhode Island—Kingston
South Carolina—
Clemson
South Dakota—
Brookings
Tennessee—Knoxville
Texas—College Station
Utah—Logan
Vermont—Burlington
Virginia—
Blacksburg, Norfolk
Washington—
Pullman, Puyallup
West Virginia—
Morgantown
Wisconsin—Madison
Wyoming—Laramie

Price Increase on Binders for CR's Bulletins

THE CHARGE for the grained, imitation-leather, non-flexible-cover binder formerly sold at cost by Consumers' Research for 75 cents postpaid, will in future be $1 postpaid, and the color will be dark brown instead of red as formerly. This increase in price is necessitated by the exhaustion of our stock of these binders; the manufacturer's price for them has been advanced in line with advances on many kinds of office supplies, including paper and envelopes.

The charge for the black fiberboard binder, formerly 25 cents postpaid, has been increased to 35 cents postpaid for the same reason.

Wartime and Consumers
New Problems for Old

[Continued from page 2]

stable. Many of the changes almost daily announced in goods are of a technical, involved nature; often their implications cannot be fully understood by the consumer and homemaker without aid from experts.

We shall welcome your suggestions and criticisms in our constant work on these new problems, in order that we may help you meet the new burdens and difficulties in the best way possible. To all these new problems Consumers' Research will continuously and carefully adapt its work, bringing to its readers dependable information as fast as that information can be assembled and checked as to its accuracy and reliability.

F.J.S. and R.J.

Home Sewing

Helps and Advice Available to the Homemaker

THE RISE in clothing prices, long anticipated and now unpleasantly realized, has stimulated into activity an interest in home sewing, for many years more or less dormant. Interest has been quickened further by the fact that in spite of all the beautiful piece goods on the shelves, ready-made dresses in the reasonably priced groups are, for the most part, made of rather nondescript materials in which the average woman buyer sees little either of beauty or high quality. This has seemed true particularly of the cotton dresses, during the past season, whose makers have selected materials with what appears to be singularly bad taste and poor judgment.

The woman who sews can make her own selections of materials, choosing those especially suited to her own needs, environment, and taste. She may save some money or she may not (depending on the quality of material purchased), but if she turns out a good job, her homemade dress will be of better material and better fitted and finished than a ready-made dress purchased at the same price.

The agricultural departments of many states employ county home demonstration agents who conduct sewing classes both for inexperienced and skilled home dressmakers, in which style trends are discussed and much good work is done. The same sort of service is available in night classes in many city schools. Classes such as those sponsored by the Singer Sewing Machine Company are very helpful to the woman interested in learning or perfecting the art of making her own dresses.

Besides making possible actual classes in home sewing, both federal and state governments have published valuable pamphlets on the subject, some of which seem worth bringing to subscribers' attention. Particularly good is Farmers' Bulletin No. 1530—Fitting Dresses and Blouses, available for 5c from the Superintendent of Documents, Washington, D. C. In practical fashion, it covers selection of patterns and materials, cutting, preparation for fitting, and actual fitting, all practical problems of the last being taken up in detail. This is a pamphlet that would prove useful both to beginners and to those with much sewing experience. Farmers' Bulletin No. 1894—Coat Making at Home is another pamphlet which should prove very useful.

The Vermont Extension Service (Burlington, Vt.) has a good mimeographed pamphlet, The Tailored Coat, and the Massachusetts Extension Service (Massachusetts State College Extension Service, Amherst, Mass.) has issued Leaflet No. 162—Make a Coat, which would also prove useful. The University of Wisconsin (Madison, Wis.) has been conducting a series of coat classes during the past year as part of its extension work, and in many other states classes in clothing making can be arranged for through the agricultural extension services. An especially good state pamphlet is Clothing Construction—Circular 407 (University of Illinois Agricultural Exp. Station and Ext. Service, Urbana, Ill., March 1939 revision, 165 pages, 25c to residents of Illinois, 35c to non-residents. Contains a wealth of advice on sewing, is well indexed and well illustrated.

Pamphlets on patterns and pattern-making are also available. The New Jersey Extension Service (Rutgers University, New Brunswick, N. J.) has a very good mimeographed unit, Patterns, and the Iowa Extension Service (Iowa State College, Ames, Iowa) has several leaflets on patterns and design, to mention only a few. Most of the state services furnish their pamphlets and other material free to residents of the state, though a charge of a few cents may be made in some cases to those who live outside the state.

Any homemaker who has the time and inclination to do the family sewing will be helped by investigating the many free and usually effective services available along this line, through her state department of agriculture and her state college of home economics. Either of them should be able to put her in touch with the right agency, depending upon the way in which her particular state's government and educational system happen to be organized. Getting the best possible living out of the family income is women's first and probably most important line of defense, and it is a task for which the homemaker in each household is directly responsible.

1942 CONSOLE-MODEL RADIO RECEIVERS

[Continued from page 14]

B. Intermediate (continued)

General Electric, Model LF-115 (continued)
cycles—fairly good. On FM (electrical), 25 to 15,000 cycles—excellent; (acoustical) 40 to 6000 cycles—insufficient for receiver designed to furnish service on FM (AM receivers do as well or better). Strong vibration due to cabinet at 30 cycles, and speaker rattle, at 310 cycles. Undistorted power output, 10 watts at 400 cycles, 8 watts at 100 cycles, 2 watts (low) at 50 cycles. Bass tone-control, relatively ineffective.

Sensitivity good on FM; on AM broadcast and short-wave, fair to good. Selectivity, only fair. Automatic volume-control action, satisfactory. Residual noise level, satisfactorily low. Was equipped with inverse feedback circuit (definitely needed with beam-power type output tubes). Electrical safety, good. Quality of parts and workmanship average, with the exception that set tested had defective tuning mechanism. (Maker advises that this defect has been corrected for future production models and also on sets already in hands of dealers.) Cabinet of unsatisfactory construction. This set would probably have warranted an *A*. *Recommended* rating had a better speaker and cabinet been used. The radio chassis in this receiver is also used in several others, including *Models LF-116* at $179.95, and *LFC-1228* at $300, the latter a radio-phonograph with one extra tube. These sets had what appeared to be a superior speaker system, and, although not tested by CR, it would seem likely, from the information available and on the basis of an expert's listening test, that these two sets would warrant an *A* rating, except that response (acoustical) on AM would not be best possible. Record-playing equipment of *Model LFC-1228* considered satisfactory. **2**

Capehart Panamuse, Model 14M3 (Farnsworth Television and Radio Corp., Marion, Ind.) $269.50. 17 tubes. AM-FM, radio-phonograph combination. Tone quality rather good but had undesirable cabinet resonance. Maximum over-all frequency response: On AM (electrical), 25 to 6000 cycles—fairly good; (acoustical), about the same. On FM (electrical), 25 to 15,000 cycles—excellent; (acoustical), to 10,500 cycles—excellent. Undistorted power output, 10½ watts at 400 cycles, 8 watts at 50 cycles; cabinet resonance (boom) very noticeable at high output.

Sensitivity good on AM. FM reception, while superior except for "boominess" in bass, would probably be satisfactory only within relatively short distances from FM stations. Selectivity satisfactory. Residual noise level, low. Electrical safety, satisfactory. Quality of parts, workmanship, cabinet, and cabinet finish, all good. Considered fairly easy to service. Phonograph response restricted to the relatively narrow range of about 4000 cycles. Pickup had desirably low (1¼ oz) needle pressure. **3**

Lafayette Concerto (Radio Wire Television, Inc., 100 Sixth Ave., New York City) $229.50 to $274.50, according to cabinet. Without cabinet or phono equipment, $137.50. 19 tubes, with tuning indicator. In addition to the conventional broadcast-band and short-wave equipment, set was equipped for FM reception. Had automatic record changer, bass and treble tone-controls, dual speakers, and desirable r.f. amplifier stage. ¶At the time of writing, data were insufficient (set defective) to permit conclusion as to tone quality; this, however, seemed somewhat less satisfactory than that of the *A*-rated sets. Frequency response: On AM (electrical), 25 to 6500 cycles—fairly good. On FM (electrical), 25 to 15,000 cycles—excellent; (acoustical), 30 to 9500—good as to range. Had good tone-control action. Undistorted power output, 11 watts at 400 cycles and at 50 cycles, 4 watts at 25 cycles. Considerable distortion evident at frequencies below 50 cycles.

Sensitivity good over most of AM broadcast band, fair on short-wave band, good on FM. Frequency setting of tuning dial, inaccurate on short-wave band. Selectivity, satisfactory. Residual noise level apparent but not annoying. Set had some shock hazard due to moderately high amount of leakage current from chassis to ground—good and permanent ground connection should be installed. **3**

Magnavox Georgian, Model 52F (The Magnavox Co., Fort Wayne, Ind.) $237.50. 9 tubes. Radio-phonograph combination. Tone quality fair—had undesirable cabinet resonance. Maximum over-all frequency response (electrical), 30 to 7700 cycles—good; (acoustical), 60 to 5300—unduly restricted. Undistorted power output, 7 watts at 400 cycles, 6 watts at 50 cycles. Sensitivity low, yet probably satisfactory for local-station use. **3**

RCA Victrola, Model V-215 (RCA Mfg. Co., Inc., Camden, N.J.) $199. 9 tubes. Equipped for reception on standard (AM) broadcast and short-wave bands. Had automatic record changer, bass and treble tone-controls, six-station push-button tuning, built-in loop antenna, and rotatable loop antenna for broadcast band. ¶Reproduction less satisfactory than that of sets rated *A*. Frequency response: (electrical) 25 to 5000 cycles—unduly restricted for set that should have been of high fidelity; (acoustical) 55 to about 4000 cycles—not good. Tone-control action, good. Undistorted power output, 10 watts at 400 cycles, 9 watts at 100 cycles. Considerable distortion evident below 75 cycles. Set lacked desirable inverse feedback circuit—necessary (and very cheaply applied) on sets with beam-power output tubes.

Sensitivity on both broadcast and short-wave bands, good. In some locations, set may be subject to interference from whistles or squeals. Automatic volume-control action, satisfactory. Residual noise, satisfactorily low. Electrical safety, good. Quality of parts and workmanship, good. Servicing considered rather difficult. Record equipment consisted of conventional automatic record changer handling either 10- or 12-in. records (not mixed), and permanent stylus pickup of low needle pressure (1 oz). **3**

Saving Automobile Oil—and Money

WITH ADDITIONAL LISTINGS OF WINTER OILS

CONSERVATION of all consumer products is now doubly important, and those consumers who have in the past followed the customary advice of the oil companies and changed the crankcase oils of their cars every 1000 miles, can begin at once not only to conserve oil, but also to save money—more than enough money to pay for their subscription to CONSUMERS' RESEARCH BULLETINS. By changing oil only infrequently or perhaps twice a year, according to the recommendations which follow, it is possible to save as much as $6—even more—per year. A total saving which may be as high as $9 per year can be accomplished by changing oil infrequently and using a recommended oil at about 17c instead of a high-priced one at 35c to 38c a quart.

For the driver using his car normally, the crankcase of an automobile should be drained twice a year, before cold weather in the fall or winter, and before warm weather in the spring or summer, and then refilled with oil having the S.A.E. viscosity recommended by the manufacturer of the automobile for the temperatures then expected. More frequent draining of the crankcase is usually not required (after the breaking-in period of a new car) and is wasteful of oil. Between these seasonal oil changes, the oil should be maintained at the recommended level. It is very important always to wait, in checking the level of the oil, for some time after the engine has stopped running. If the oil is measured while the engine is running, or too soon after it stops (a practice almost universally followed by service-station men), an underestimation of the oil level will be obtained, as a large quantity of oil will not be in the crankcase but in various parts of the engine and lubrication system. Too much oil is then added, with the result that the extra oil is quickly and wastefully consumed (because at too high a level) and the car is erroneously judged to have excessive oil consumption. Actually, of course, the fault is often the driver's for permitting the service-station attendant to add oil needlessly or in excess.

In severely cold climates, an occasional change of oil during the winter may be desirable on account of dilution of the oil with gasoline and water (condensed water-vapor) which accumulate in the crankcase. Dilution is most likely to occur if the car is driven only for short trips in city or suburbs, when frequent starts and stops are made, and the motor is in poor mechanical condition.

The recommendation on not changing oil frequently, given for many years by Consumers' Research, has also been picked up and given wide publicity by one of the new government defense agencies of the Office of Price Administration, this being a case of long-delayed federal government attention and publicity given to a matter which for a generation has been within the scope and interest of a number of federal government agencies.

* * *

This report gives the results of tests on a number of automobile oils obtained in the East, Southeast, and Far West. Results of the tests were not available in time to permit listings of these oils to be included in the report on Winter Oils in the February BULLETIN.

All of the oils listed fell within the limits of Navy or Federal Specifications for the permitted percentage of carbon residue, and many so far bettered the permitted limit as to fall in a superior group, known in the Federal Specifications as "special credit" oils.

Except as otherwise noted, the oils were purchased and tested by CR. Where the letters "sg" appear after a listing, the sample of oil was tested by a state-government laboratory in the Far West, and the rating was made by CR on the basis of the data reported by the laboratory. Prices given are per quart unless otherwise noted, and include state taxes where levied. Regions where the samples were purchased are indicated in parentheses immediately after the brand names, i.e. (E), East; (SE), Southeast; (FW), Far West. Ratings are cr42.

10 or 10W Oils

A. Recommended

Alemite (E) (Div. of Stewart-Warner Corp.) 35c.

Amoco (E) (American Oil Co.) 25c.
Atlantic Quality (E) (The Atlantic Refining Co.) 25c.
Eastern States (E) (Distrib. Eastern States Farmer's Exchange) 18.8c. 2½-gal can, $1.88.
Havoline (FW) (The Texas Co.) sg.
Jenny Solvenoil (E) (Jenny Mfg. Co.) 35c.
Standard Penn (FW) (Standard Oil Co.) sg.

B. Intermediate

Valvoline (FW) (Valvoline Oil Co.) sg.

C. Not Recommended

MacMillan Ring Free (FW) (MacMillan Petroleum Corp.) sg.
Sunoco (E) (Sun Oil Co.) 25c.

20 or 20W Oils

A. Recommended

Conoco Nth (FW) (Continental Oil Co.) sg.
Esso No. 1 (E) (Standard Oil Co. of N.J.) 30c.
Essolube (SE) (Standard Oil Co. of La.) 25c.
Golden Shell (SE) (Shell Oil Co.) 25c.
Gulf Pride (SE) (Gulf Oil Corp.) 35c.

B. Intermediate

Conoco Germ Processed (SE) (Continental Oil Co.) 35c.
Koolmotor (SE) (Cities Service Oil Co.) 35c.
Lubrite (FW) (General Petroleum Corp.) sg.
Quaker State (FW) (Quaker State Refining Co.) sg.
RPM (FW) (Standard Oil Co. of Calif.) sg.
Texaco Insulated (FW) (The Texas Co.) sg.

C. Not Recommended

Marathon (SE) (The Ohio Oil Co.) 25c.
Motorine (FW) (Continental Oil Co.) sg.

30 Oils

A. Recommended

Conoco Nth (FW) (Continental Oil Co.) sg.
Lion Head (FW) (Gilmore Oil Co.) sg.
Wards Supreme (FW) (Distrib. Montgomery Ward & Co.) sg.

B. Intermediate

Cross Country (FW) (Distrib. Sears, Roebuck & Co.) sg.
Richfield Penn (FW) (Richfield Oil Co.) sg.
Sinclair Penn (SE) (Sinclair Refining Co., Inc.) 30c.

RECONDITIONED TIRES

[Continued from page 6]

price of the manufacturer's first-line tire. The price paid for your tire, if bought at a regular retail price, therefore determines what grade of tire you got. If you got your tire at a discount and want to calculate the accepted retail price, you will have to be sure that it was a real discount and not a fictitious or trading discount that was allowed you, for the system of brand names used in the tire industry, with suppression of the actual grade or level of the tire, was no doubt employed to permit various discounts or "special prices" to favorite customers that were not discounts at all. This rule of figuring grade from retail price does not apply to tires purchased from the Sears-Roebuck and Montgomery Ward mail-order houses and their retail stores; with those firms, premium or extra-grade and "first-line" tires are probably the ones to be favorably considered for reconditioning.

If your tire falls in one of the classes that are fortunately suitable for reconditioning, examine it closely and have reconditioning done only if none of the following defects is present.

1. Tread worn down so much that the cord in the casing is exposed. Any tire that is intended to be reconditioned by **recapping** (now said to be the only method permitted) should be removed from the car soon after the tread pattern has disappeared. The consumer may wish to get the maximum mileage out of his tires before having them recapped, but this is likely to be risky since a tire with the breaker strip or cord exposed is not suitable for reconditioning by recapping (because sufficient tread rubber will not be left to allow for buffing to a true circle). With a careful driver, a tire may be run (but with some risk) for not more than 3000 or 4000 miles (depending upon road conditions) beyond the point at which the bottom of the tread pattern has disappeared, on the rubber which lies between the tread pattern and the surface of the breaker strip. Tires in good condition can be recapped several times; indeed, taxicab tires in New York City have been recapped five or six times each, the average for the fleet being two recappings per tire. Since now only a very low grade of rubber compound, made entirely of scrap rubber (which will wear relatively rapidly), is to be allowed for recapping passenger-car tires, more total recappings (at great extra cost to consumers in time, trouble, and expense) will have to be applied to utilize the original tire carcass fully and to obtain the mileage formerly possible with a single recap. The government officials now holding power

to control civilian consumption by decree obviously wish to keep automobile utilization to a minimum and to discourage to the maximum extent possible, civilian and non-essential consumption of tires, gasoline, and oil. In order to obtain the maximum total mileage with a given tire carcass, the tire must be removed for recapping each time as soon as the tread pattern disappears. If future availability of materials permits **re-treading** of tires, considerably more wear can be allowed before the tire is brought in for reconditioning, than would be the case if the tire is to be recapped.

There is a definite risk in wearing the tire too thin before retreading, for at points where the breaker strip is only thinly covered (and this can sometimes be noted by a careful observer by a close scrutiny of the tires after every trip, when the tread pattern is gone) foreign matter works through into the cotton (or rayon) cords under the breaker and may damage them to an extent that will shorten the life of the tire when it is thereafter reconditioned. It is difficult, therefore, to specify in other than this general way the point at which the tire should be taken off (for best economy) and at the same time ensure a satisfactory retreading job.

2. A tire with a damaged bead (the bead is the part reinforced with wire, which forms the inner periphery of the tire, holding it onto the rim).

3. A tire in which some of the plies have separated.

4. A tire with a crack or cut on the sidewall.

5. A tire which shows evidence of overloading or of having been run underinflated. Such a tire may show many small breaks on the inside, due to excessive flexing.

6. A tire which has been run flat after a puncture.

7. Any tire which has been used with a punctureproof tube or other tube which does not go flat immediately when punctured is under a special handicap. Such a tire must be examined with extreme care, for it may have been damaged irrevocably by embedded nails, bits of iron, and other foreign objects. (A tire used with an ordinary inner tube must, of course, be attended to immediately when punctured, and the foreign objects removed.)

8. Any tire whose age is such that its rubber has deteriorated and its carcass is no longer strong. Tires which have been used less than 5000 miles per year will on the average perhaps have been damaged as much by weather deterioration (aging) as by wear, and hence will not be as satisfactory for recapping as tires which have been given a high mileage per year.

Selection of a Reliable Shop

Prior to the rubber shortage, most reconditioning was confined to truck tires; reconditioning of the tires on passenger cars was high in price and too variable and uncertain to warrant very much use by ultimate consumers. Now conditions have changed and CR will naturally welcome reports or studies by subscribers on their experiences with reconditioning and with reconditioned tires. Such reports should contain complete information on the type of reconditioning, name of firm doing the work, mileage obtained before and after reconditioning, etc. Usable information or articles will be welcomed and considered for publication. For the present, it can only be said that the most reliable and responsible reconditioning will usually be that which is done by the original manufacturer of the tire or by a local specialist of known probity, experience, and good reputation. Beware of the fly-by-night who has suddenly gotten into this industry from some other field of work wholly unrelated to it. He may be a good tire reconditioner now or eventually, but until it is established by local experience that he is, the consumer who must be careful with his few remaining tires will wish to avoid needless risk of having the work done by a person or shop of unknown qualifications.

It is understood that the following tire-manufacturing and mail-order firms are handling or planning to handle tire reconditioning:

Goodyear Tire & Rubber Co., Inc., Akron, Ohio. Facilities as of January 26 jammed to capacity. Delivery on new orders not less than 60 days.

Lee Tire & Rubber Co., Conshohocken, Pa. Facilities for passenger car tires jammed to capacity. No new orders accepted at present time (Feb. 2, '42).

Montgomery Ward. This company plans to go into the tire-reconditioning business as soon as satisfactory arrangements can be made. Present plans are to have retail stores handle the business locally.

Sears-Roebuck. Plans to handle reconditioned tires in the near future, date to be announced in one of the next sale catalogs.

Firestone Tire and Rubber Co., Akron, Ohio. This com-

pany reconditions tires, designating the product as *New-Treads*. Report on present facilities and capacity not available.

B. F. Goodrich Co., Akron, Ohio. It is understood that this firm is not now in a position to make promises on delivery dates.

General Tire & Rubber Co., Akron, Ohio. With several hundred tires on hand waiting to be reconditioned, unable to accept new orders at present (Feb. 11, 1942).

As already mentioned in this article, the best policy is to have your own casing reconditioned if you have one for the purpose. To ensure getting your own casing back, note its serial numbers and all other identification marks on it carefully, and see that the dealer accepting your tire for reconditioning notes the serial number and make and size of the tire, too, on the receipt. Recording of the serial numbers of **all** your tires is an important matter in any case, for if your tires are stolen—and many tires will be in the next few months or years—you will not be able to recover them from the police or other authorities unless you can prove knowledge of the serial numbers.

It is reported that some firms having more business than they can handle have taken the short-sighted policy of refusing to guarantee you will receive your own casing back. At the present stage of the business, it is probably wise not to deal with such a firm, for in avoiding clerical and special handling necessary to keep track of individual tires, the firm is putting the consumer wholly at an unfair disadvantage, and it will probably be safe to assume its work is not in general trustworthy.

It is understood that it is to be a requirement that dealers and reconditioning plants shall furnish with every job a written statement showing whether the tire has been retreaded, full-treaded, or top-capped; and giving the market price of the camelback used and the depth of the non-skid tread at the center of the tire. See that this information is clearly and legibly written in every case on the invoice or sales slip.

That there have been gross misrepresentations in this field is apparent from a recent Federal Trade Commission release. The Commission proceeded against the Beho Rubber Company, Inc. (which used various other names in its several stores in Chicago), for claiming that the tire carcasses used by them for retreading and recapping were less than one year old (actually the company had no means of knowing the age of the carcasses used and in some cases old and useless carcasses were reconditioned). Reconditioned tires sold were not free from boots and patches as claimed, and some of the tires sold would give service for only a few days.

Prices for Reconditioning

With the increased demand for reconditioned tires, it was only natural that prices would show sharp increases, and profiteering result. In an effort to curb this, the Office of Price Administration set price ceilings for reconditioned tires, effective January 19, 1942, ordering that a price list conforming to their schedules be posted in all establishments engaged in this type of work. Not too much weight should be given to this system of price control for the present, for the trade is one that will require a great deal of policing and will not be much influenced by a general talking to or denunciation by officials. The regulations did not apply to used regrooved tires, and there has been much profiteering in this field, for dealers have been getting prices for such tires far in excess of the prices set for the much more desirable recapped tires. Regrooved tires, without much regard to their condition, have been sold for from four to eight times their normal value. Of one thing, however, the consumer may be fairly certain—the large tire manufacturers will adhere to the regulations with care, and that is another reason why there will be an especial safeguard for the consumer under present conditions in having tire reconditioning handled by large firms, such as Goodyear, Firestone, etc. ¶The figures for maximum reconditioning prices recently made public by the Office of Price Administration were based on use of the most expensive grade of camelback (with deepest tread), and the second most expensive grade of camelback (with the second deepest tread depth). Already it appears that these grades are not to be available for use on passenger-car tires. In order that information of some practical usefulness shall be available, CR is reproducing below a portion of a price list for recapping of the most commonly sized passenger-car tires, issued by the Goodyear Rubber Company.

Passenger-Car Tires and Basic Tire Carcasses

Tire Size	Maximum prices when using camelback the market price of which, exclusive of federal excise tax, is less than 17 cents per lb†† Tread Design Depths † 10-11/32"	less than 10/32"	Basic Tire Carcasses. Add this price whenever any tire carcass is not furnished by consumer
5.25-17	$4.10	$3.80	$1.50
5.50-16	4.40	4.05	1.50
5.50-17	4.50	4.15	1.50
6.00-16	4.75	4.40	1.50
6.25-16	5.25	4.85	1.50
6.50-16	5.55	5.15	1.50
7.00-15	6.50	6.00	1.50
7.00-16	6.60	6.10	1.50

† Figures expressed in terms of 32nd inches are the depths of the tread design imposed by the retreading or recapping process at the center circumference of the tire.

†† The only grade of camelback that recapping shops will have available for use on passenger-car tires under present regulations.

Editor's Note

The foregoing has been carefully compiled and continually corrected from the latest information available and, so far as is known, was accurate as of the time of going to press. It must be remembered, however, that government rulings in the field of all sorts of goods that are in short supply, especially perhaps rubber goods, are changing rapidly. Such orders are indeed almost on an overnight basis, whence neither CR nor anyone else (and this includes high government officials) can predict how such changes may affect the quality or availability of the work turned out by the tire-reconditioning industry. Even the question of molds for forming the tire and its tread in the retreading and recapping processes has already become critical, due chiefly to scarcity of metals. Aluminum or aluminum alloys seem to be required for the part of the mold which imprints the tire tread design. The industry itself as it gains experience may also improve its methods; or with growth and increasing complication in government regulations it will likely be forced to use still lower grades of material than the very low grades now required, or cut corners in the processing.

CR will be glad to receive any available new information on this subject from men who are working in this important field, or from engineers, chemists, or other technicians who are in close touch with its development—a field of the utmost importance to 27 millions of American automobile owners.

Corrections and Emendations to Consumers' Research Bulletin

Boilers for Anthracite Coal Stokers
December 1941
Page 14, Col. 2

Delete comment under B. Intermediate which reads, "The following boilers are judged not to have quite sufficient clearance between retort and crown sheet. . ." and change the rating of *Heggie Simplex*, *Royal Semi-Tubular*, and *Spencer* "K" boilers, to which this comment applied, from B. Intermediate to A. Recommended.[1]

Delete comment under "Previously listed B. Intermediate Boilers for Anthracite Stokers" which reads, "The following boiler has rather limited clearance between retort and crown sheet —*Fuel-Savers*, Type DD," and change the rating of *Fuel-Savers*, Type DD boiler from B. Intermediate to A. Recommended.[1]

Boilers for Anthracite Coal Stokers
November 1941
Page 25, Col. 1

Delete the comment under B. Intermediate which reads, ". . .but for anthracite stokers it has rather limited clearance between retort and crown sheet," and change the rating of *Fuel-Savers*, Type DD boiler, to which this comment applied, from B. Intermediate to A. Recommended.[1]

[1] While engineers have established as desirable certain minimum distances between retorts and crown sheets of boilers for both bituminous- and anthracite-burning furnaces, their figures appear to have been based upon data that are not reliable or up to date as to anthracite fuel. New tests by the well-qualified Anthracite Industries Laboratory with use of anthracite coal (most of the data for which are as yet unpublished) have apparently shown conclusively that the minimum distances can be very much smaller than those which have hitherto been accepted and recommended by well-qualified heating engineers, without significant effect upon boiler-and-furnace efficiency.

Special Heat Supply for an Invalid's Room

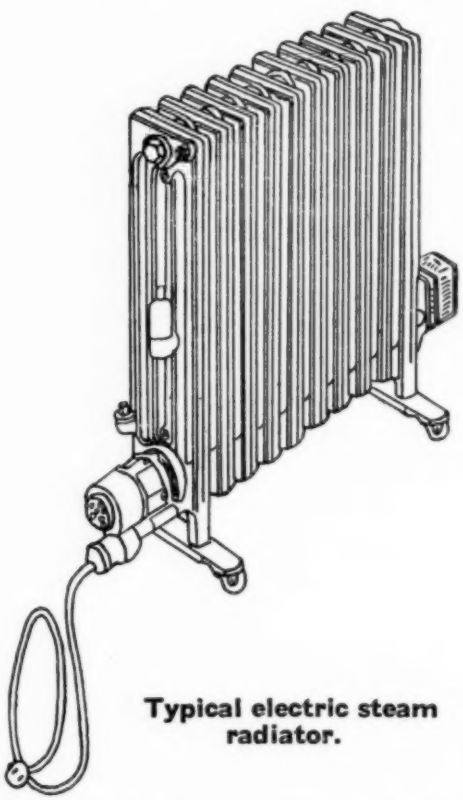
●A subscriber wrote us a letter some months ago asking for help with a problem. It happened that in this case the economical solution of our subscriber's problem would have interest for many other readers. "In my house," writes the subscriber, "is an invalid who requires a great deal of heat throughout the year. The house is heated by hot water from an oil-burning furnace. Whenever the invalid needs heat, the whole house is heated also, which is most uncomfortable for everybody else. Also, on such occasions, even when most of the radiators are turned off, the furnace goes full tilt, burning up a great deal of oil and involving a great deal of expense. . .

"Some time ago we ran across the enclosed advertisement of a steam radiator heated by electricity. Would you say that this advertised heater is a very good one for our purpose? Can you recommend anything better for heating an invalid's room promptly, agreeably, safely, with automatic thermostatic control for starting and stopping, and as inexpensively as one can hope for under the circumstances?"

The substance of our reply to this inquiry is reproduced here for the benefit of those subscribers who may have a similar or related problem.

WE CAN give a general idea of how much it would cost to heat, using electricity as "fuel," an ordinary bedroom of about 160 square feet floor area (1280 cubic feet) to 80°F, with the outside temperature at 55°F (a temperature difference of 25°F). The cost at an electric rate of 4 cents per kilowatt-hour would amount approximately to 4 cents an hour. If a smaller temperature difference between indoors and outdoors were assumed, operating cost would be proportionately less (e.g., 3 cents an hour [¾ x 4 cents] for raising the temperature in the room 19° [¾ x 25°] above the temperature outdoors); for a larger difference the operating cost would be greater, likewise, in proportion. If it should be decided that electric operating costs are not prohibitive, the consumer would have the choice of an electric steam radiator costing about $60 in the 1250-watt size, and $65 in the 1500-watt size, or an electric heater of the radiant type, which may cost up to $10 in the 1350-watt size. For a room of about 160 square feet floor area an electric heater rated at 1300 to 1500 watts would afford capacity to spare, and would not have to operate continuously. The principal advantages of the steam radiator are its built-in automatic or thermostat control and its larger radiating and convecting surface areas, which tend to produce better diffusion of temperature throughout the room.

Certainly, however, one should consider the possibility of adapting a hot-water heating system equipped with an oil burner to heating the single room only, when desired. (A similar adaptation can also be made with an automatically controlled vapor or steam heating system using stoker or hand firing.) The changes, which should be made by a qualified plumber or heating contractor, would involve the installation of a separate connection from the boiler to the radiator in the invalid's room, a thermostat installed in the room, and a shut-off valve (or valves) at the boiler to permit shutting off the water flow in the main supply line (or lines) for the rest of the house. The best arrangement would be to have two thermostats. One would be placed in the invalid's room to control an electric valve in the supply line to that room. The other would be in the living room to control an electric valve (or valves) in the supply line (or lines) conveying hot water to the rest of the house. The temperature of the water in the boiler should be controlled by



Typical electric steam radiator.

an immersion thermostat. (For safety, moreover, it is important that there should also be a second immersion thermostat installed for protection against any possible excessive temper-

atures occurring in the boiler.) This arrangement, besides supplying heat independently either to the invalid's room or to the remainder of the house, would have the further advantage that the oil burner, by means of an indirect heater attached to the boiler, could heat the domestic hot-water supply at a moderate cost throughout the year. If the boiler, the indirect heater, the hot-water storage tank in the cellar, and the supply mains are all well insulated, there will not be sufficient heat given off to the house to be at all objectionable in hot weather; the arrangement may, indeed, have advantages in houses troubled with dampness in the cellar, as many are.[1]

The cost for heating the separate room with oil at 7 cents per gallon would be very roughly about one-tenth of the cost of heating it with electricity at the 4-cent rate. Adapting the present heating system for special heating of the invalid's room would thus have a number of advantages over installation of an auxiliary electric heater.

[1] Conditions in many houses in latitudes north of Philadelphia or Indianapolis will be improved if a small amount of heat is applied for an hour or two in the morning on cool, damp, summer days, to prevent excessive moisture from being deposited in clothing, leather chairs, upholstery, hangings, rugs, etc., which may otherwise sometimes become damp or even moldy during protracted spells of rain or fog. The problem of mold in clothing and shoes can usually be satisfactorily dealt with in this way if closets are left open for ventilation during the short periods when heat is being supplied to the room.

American Substitutes for European Cheeses

THE UNITED STATES is not an outstandingly cheese-eating country; it ranks about eleventh among the cheese-eating nations of the world, with a per capita consumption of only about four pounds a year. Although Wisconsin produces a great deal of cheese—over half the American production—and some other states have rather important cheese industries, varieties have been somewhat limited and Americans who have hankered for fine cheeses have had to depend largely upon European countries for their favorite types. Due to existing war conditions, European cheeses no longer reach American markets in their usual volume, and many famous types of cheese of foreign manufacture are no longer available. Outstanding foreign cheeses that, it is said, can no longer be imported are French Roquefort, the Italian hard cheeses for grating (e.g., Parmesan), English Stilton, Edam and Gouda from the Netherlands, Danish Bleu, and some of the Scandinavian goat's milk cheeses. One dairy company official has expressed himself as believing that it will probably be as long as two years after peace is restored in Europe before Denmark, Holland, and France can start exporting cheese to this country.

For those who enjoy these fine types of cheese, however, there is some encouraging news in an article entitled "Western Hemisphere Cheeses Replace European Imports," in Food Industries for March 1941. According to that article, several North American manufacturers, as well as cheese makers in Argentina, have been experimenting quite successfully with Blue cheese, a type similar to Roquefort but made from cow's milk. Nevertheless, it seems to be generally agreed that no satisfactory Roquefort cheese has as yet been made in either of the Americas. (True Roquefort is made of ewe's milk and is ripened in cold, moist air of caves.) Argentina has been experimenting with ewe's milk Roquefort, but connoisseurs feel that the true Roquefort flavor has not yet been achieved. Further trials may produce a better product.

Parmesan made in Argentina is not a satisfactory substitute for the Italian product, the South American cheese being inferior both as to texture and flavor. It has been suggested that part of the trouble is the shorter curing time used instead of the two- or three-year period which Italian Parmesan requires.

Acceptable Baby Goudas, Brie, and Holland-type Edam cheeses of American origin are already being marketed, and fairly satisfactory Scandinavian types of cheese are coming from various manufacturers in the United States. Domestic Limburger has long been judged superior to the German-made product.

The United States' dependence upon foreign countries for variety in cheese types and the Europeans' long tradition of cheese making, with their willingness to use slow and patient processing methods, have no doubt been responsible for the failure to develop a wide variety of cheese types in this country. Perhaps with the present curtailment of shipments from Europe, a number of welcome additions to the varieties of domestic cheeses available will be made. This is not likely to occur, however, if American dairy experts spend much of their skills, as they commonly have done in approaching similar problems in other fields, in finding quick, easy, and short-cut techniques for production. Cheese, like ham, takes time if a good and tasty rather than a merely tolerable and edible product is desired. If American experts do not bestir themselves to produce cheese of quality and flavor, the results of their research and propaganda will likely be that a great many consumers will just learn to do without cheese, as they have already pretty much learned to do in those parts of the United States where only unripened or poorly ripened cheese or flavor-doctored process cheeses are widely distributed.

CONSUMERS' DIGEST

In the Groove

With Ratings of Phonograph Records

By

WALTER F. GRUENINGER

At the disposal of phonograph record manufacturers there appears to be sufficient shellac, principal component of commercial records, to carry on the present rate of production for several years. After that manufacturers may buy old records from dealers to mix in the dough for new records. After that they may turn to a plastic.

What the manufacturers won't admit, however, is that the quality of their product has deteriorated. Yet, I hear more swishes and grit in records today than I heard last year. I find it necessary to use *Victor Chromium* needles to clean out the grooves of nearly all new records, thus in a sense finishing the manufacturing process on my turntable.

Nearly everywhere the price of records to the consumer has been increased by the amount of the excise tax, and rumor has it that the price of records will again increase, possibly to a $1.25 top.

Nevertheless, record manufacturers' schedules seem to presuppose as much business as last year, when unofficial figures claimed over 100,000,000 discs were sold in this country—an all time high. One factor considered in this estimate is England's experience. Records are still manufactured there and classical music was never more popular than it is today.

Our dealers find it increasingly difficult to get records not in the jobbers' hands—a sign that older items, when sold out, are not quickly placed on the manufacturer's pressing machines for repressing.

In view of the deterioration in quality, when records are not heard before purchase try to arrange for the right to return them if manufacturing defects show up on playing.

A dealer who has a stock of records which has been on his shelf a year or two is likely to offer a product that is better made than one who must order from his jobber today.

As the ratings show, the performance of the older recordings frequently tops those of the new. Occasionally, this is true of the fidelity of recording as well, though normally the reverse would be expected to be true.

Ratings of Phonograph Records

List Prices Are Given Exclusive of Tax

Key: AA—highly recommended; A—recommended; B—intermediate; C—not recommended.

	Quality of Music	*Interpretation*	*Fidelity of Recording*
ORCHESTRA			
Boyce: *The Prospect Before Us.* Sadler's Wells Orch. under Lambert. 6 sides, Victor M857. $3.50. An enjoyable suite revealing the influence of Handel, arranged for ballet from the works of England's 18th century composer, Boyce.	A	AA	A
Gliere: *Symphony No. 3* (11 sides) & **Chopin:** *Mazurka in B Minor* (1 side). Phila. Orch. under Stokowski. Victor M841. $6.50. Programmatic symphony, first performed in 1912. Principally for the connoisseur who has everything else.	B	AA	A
Grieg: *Sigurd Jorsalfar—Intermezzo & Prelude.* Indianapolis Symph. Orch. under Sevitzky. 2 sides, Victor 18291. $1.	B	AA	AA
Rimsky-Korsakoff: *Scheherazade.* Anonymous Symph. Orch. 10 sides, Masterpiece Album A26. $2.89. This popular suite has worn itself thin for me but those who like it should buy either Columbia M398 or Victor M269.	B	A	C
Saint-Saens: *Omphale's Spinning Wheel.* Nat'l Symph. Orch. under Kindler. 2 sides, Victor 18358. $1.	C	A	AA
Sibelius: *Tapiola.* Boston Symph. Orch. under Koussevitzky. 4 sides, Victor M848. $2.50. To me this is not "one of the great works in the whole range of symphonic music" as brochure claims.	B	AA	A
Tschaikowsky: *Eugen Onegin—Waltz.* Boston Pops Orch. under Fiedler. 2 sides, Victor 4564. 75c.	A	AA	AA

	Quality of Music	Interpretation	Fidelity of Recording
Wagner: *Die Gotterdammerung—Siegfried's Rhine Journey & Funeral Music.* NBC Symphony Orch. under Toscanini. 6 sides, Victor M853. $3.50. The first 3 sides present the music on Toscanini's older Victor 14007/8, the performance on which equals that of the new and is only a hairsbreadth inferior in recording. The last 3 sides are new. If you have the older discs, buy only the $1 V18320, the *Funeral Music* minus the seldom played *Siegfried's Death.*	A	AA	AA
CONCERTO			
Mozart: *Concerto No. 3.* Brain (horn). 4 sides, Victor M829. $2.50. A warm, melodious, romantic work featuring the French horn.	A	AA	AA
Mozart: *Sinfonia Concertante* (K364) (7 sides) & **Handel:** *Adagio* (1 side). Spalding (violin), Primrose (viola). Victor M838. $4.50. The major work is predominantly gay with a beautiful, contrasting slow movement. Highly recommended to those who like violin or viola music. On all counts, best available recording.	AA	AA	A
Rachmaninoff: *Rhapsody on a Theme of Paganini.* Moiseivitch (piano). 6 sides, Victor M855. $3.50. Brilliant variations in concerto form. Exciting performance, superb English recording.	A	AA	AA
VOCAL			
Donizetti: *Lucia di Lammermoor—Tomb Scene.* Peerce (tenor), Kent (baritone). 4 sides, Victor M845. $2.50. Notable chiefly for Peerce's singing. To save money, buy the more interesting disc only—V 18307 ($1).	B	AA	AA
Faure: *Requiem* (9 sides) & **Mozart:** *Ave Verum Corpus* (1 side). Montreal Festivals Orch., Chorus, Soloists under Pelletier. Victor M844. $5.50. The *Requiem* is a little-known but extraordinarily beautiful sacred work. There's more drama in this performance than in the tranquil Columbia M354, also more fidelity, and more grit in the grooves. Overall, I prefer Columbia M354. The recommended Mozart filler represents extra value offered by Victor only.	AA	A	A
Mascagni: *Cavalleria Rusticana—Siciliana* & **Leoncavallo:** *Pagliacci—Serenata.* Melton (tenor). 2 sides, Victor 18365. $1.	A	A	A
Ponchielli: *La Giaconda—O Monumento* & **Verdi:** *Falstaff—Monologo di Ford.* Warren (baritone). 2 sides, Victor 18293. $1.	B	AA	AA
Verdi: *Don Carlos—O Carlo, Ascolta* & **Skiles:** *Ballade of the Duel.* Dickson (baritone). 2 sides, Victor 18357. $1.	B	AA	AA
Verdi: *Otello—Love Duet, Willow Song, Ave Maria.* Lemnitz (soprano), Ralf (tenor). 4 sides, Victor M860. $2.50. Verdi at his best. Victor 18364 ($1), on which Lemnitz sings the prayer *Ave Maria* and the plaintive *Willow Song,* is the record of the month. Recording of Ralf's voice is distorted.	AA	A	A
Wagner: *Three Deathless Songs.* Traubel (soprano). 4 sides, Victor M872. $2.50. Two studies for *Tristan und Isolde, Im Treibhaus,* and *Traume,* and one other, *Schmerzen.* Wide appeal to devotees of Wagner and other lovers of serious vocal music.	A	A	A
Danish & Swedish Songs. Melchior (tenor). 12 sides, Victor M851. $5. Worshippers of Melchior may enjoy the complete album. Others are likely to find most value in the outstanding discs V2189/90 ($1.50).	A	AA	A
LIGHT, FOLK & MISCELLANEOUS			
Sandburg: *The People, Yes.* Recited by Carl Sandburg. 6 sides, Decca Album 273. $3.50. A modern poet dramatically, impressively, recites selections from his celebrated long poem.	A	AA	AA
Ballads of Old Ireland. Ross (tenor). 8 sides, Victor P103. $2.50. These charming, traditional Irish ballads, nearly all new to me, are likely to please everyone. Even though Lanny Ross is no John McCormack, this is one of the month's most refreshing sets.	AA	A	AA
Close Harmony. Eton Boys. 8 sides, Victor P99. $2.50. *Sweet Genevieve, I Want a Girl, Roll Dem Bones, Wait Till the Sun Shines Nellie,* etc., sung by a male quartet.	A	A	AA
Cuban Rhythms. Hotel Nacional Orch. of Havana. 8 sides, Musicraft N4. $2.25. Unfamiliar, run-of-the-mill congas, rhumbas, etc.	B	AA	AA
Latin Rhythms. Ecuadorian Trio (guitar, rondador, voice). 6 sides, Musicraft Album 56. $2.75. Authentic performances of interesting folk music from Chile, Ecuador, Colombia, Argentina. Best disc, Musicraft 267 (75c), offers a Chilean Cueca and a Colombian Bambuco.	A	AA	AA
Helen Morgan (soprano). 8 sides, Victor P102. $2.50. With one exception reissues of discontinued discs (cut-outs). The exception is the best disc: *Can't Help Lovin' Dat Man & Bill* on V27681 (50c).	B	AA	A
Operetta Selections. Claire (soprano). 6 sides, Victor C37. $2.75. *Oh Promise Me, Angelus, Italian Street Song,* etc. Not "beautifully sung." No better than a routine performance.	A	B	B
Salon Music. Selinsky & His Salon Orch. 8 sides, Columbia C80. $2.50. *Mignonette* & *Fleurette* on C36473 & *Caprice Viennois* & *Vienna, City of My Dreams* on C36474 interest me most, though all selections are played with spirit.	A	AA	AA
Yale Glee Club. 8 sides, Columbia C79. $2.50. A recital of 4 songs of Yale, 3 Sea Chanties, 6 folk songs & spirituals.	A	B	A

Ratings of Motion Pictures

This department of CONSUMERS' DIGEST endeavors to supply the critical consumer with a digest of opinion from a number of reviews, ranging from the motion picture trade press to Parents' Magazine which rates motion pictures not only on their quality as entertainment, but on their suitability in various aspects for children.

It should be emphasized that the motion picture ratings which follow do not represent the judgment of a single person but are based on an analysis of the reviews appearing in some 22 different periodicals. (For example, "Skylark" was recommended by 2 reviewers, rated intermediate by 10, and not recommended by 5.) The sources of the reviews are:

America, Baltimore Sun, Box Office, The Christian Century, The Exhibitor, Harrison's Reports, Liberty, Mademoiselle, Motion Picture Herald, Motion Picture Reviews (The Women's University Club of Los Angeles), *National Legion of Decency List, Newsweek, The New Yorker, New York Herald Tribune, New York Sun, New York Times, New York World-Telegram, Parents' Magazine, Releases of the D.A.R. Preview Committee, Successful Farming, Time,* and *Variety* (daily).

Periodicals will be added to this list from time to time as future exploration of the subject brings to light other journals offering critical appraisals of motion pictures which appear to be deserving of the intelligent reader's consideration.

The figures preceding the title of the picture indicate the number of critics who have been judged to rate the film A (recommended), B (intermediate), and C (not recommended).

Audience suitability is indicated by "A" for adults, "Y" for young people (14-18), and "C" for children, at the end of each line.

Descriptive abbreviations are as follows:

adv—adventure
biog—biography
car—cartoon
com—comedy
cri—crime and capture of criminals
doc—documentary
dr—drama
fan—fantasy
hist—founded on historical incident
mel—melodrama
mus—musical
mys—mystery
nov—dramatization of a novel
rom—romance
soc—social-problem drama
trav—travelogue
war—dealing with the lives of people in war time
wes—western

A	B	C		
1	11	1	**All Through the Night**	*war-mel A*
—	5	1	**All-American Co-Ed**	*mus-com YC*
—	8	8	**Aloma of the South Seas**	*rom AY*
—	5	7	**Among the Living**	*mys A*
1	11	6	**Appointment for Love**	*com A*
—	4	—	**Arizona Terrors**	*wes AYC*
2	12	3	**Babes on Broadway**	*mus-com AYC*
—	1	8	**Bahama Passage**	*dr A*
—	17	1	**Ball of Fire**	*com A*
—	6	4	**Bedtime Story**	*com A*
1	18	—	**Birth of the Blues**	*mus-com AY*
—	—	3	**Blonde Comet, The**	*mel AYC*
—	8	1	**Blue, White, and Perfect**	*mys A*
—	7	9	**Blues in the Night**	*mus-dr A*
—	5	2	**Body Disappears, The**	*com A*
—	8	2	**Bombay Clipper**	*war-mel AYC*
—	5	1	**Borrowed Hero**	*cri AYC*
—	3	—	**Broadway Big Shot**	*com AYC*
—	8	—	**Bugle Sounds, The**	*war-mel AY*
—	10	4	**Buy Me That Town**	*com A*
—	5	3	**Cadet Girl**	*mus A*
—	4	5	**Call Out the Marines**	*war-mus-com A*
2	2	—	**Captains of the Clouds**	*war-dr A*
—	12	4	**Chocolate Soldier, The**	*mus-com AY*
—	3	2	**Come On, Danger**	*mus-wes AY*
—	4	4	**Confessions of Boston Blackie**	*mys A*
—	10	5	**Confirm or Deny**	*war-mel A*
—	16	3	**Corsican Brothers, The**	*nov AY*
—	5	—	**Dangerously They Live**	*war-mel AYC*
—	6	3	**Date with the Falcon, A**	*mys AY*
—	2	2	**Death Valley Outlaw**	*wes AYC*
1	7	1	**Design for Scandal**	*com A*
—	5	1	**Devil Pays Off, The**	*war-mel A*
—	2	4	**Don't Get Personal**	*com AYC*
—	3	1	**Double Trouble**	*com AY*
1	5	—	**Down Mexico Way**	*mus-wes AYC*
—	6	2	**Dr. Kildare's Victory**	*dr A*
—	5	1	**Driftin' Kid, The**	*wes AYC*
—	7	1	**Dude Cowboy**	*wes AY*
9	11	—	**Dumbo**	*car AYC*
—	3	3	**Ellery Queen and the Perfect Crime**	*mys AYC*
—	—	3	**Escort Girl**	*mel A*
—	3	—	**Eternal Gift, The**	*doc AYC*
—	10	9	**Feminine Touch, The**	*com A*
—	3	2	**Fiesta**	*mus-com AY*
—	3	—	**Fighting Bill Fargo**	*mus-wes AYC*
—	4	—	**Fleet's In, The**	*mus-com A*
—	2	2	**Fly by Night**	*war-mel A*
1	4	3	**Flying Cadets**	*war-dr AYC*
—	2	1	**Forbidden Trails**	*wes AYC*
2	8	2	**Forgotten Village, The**	*doc A*
—	4	3	**Four Jacks and a Jill**	*mus-com AY*
—	8	1	**Gay Falcon, The**	*cri A*
—	4	1	**Gentleman at Heart, A**	*cri-com A*
—	7	—	**Gentleman from Dixie, The**	*mus-mel A*
—	11	—	**Glamour Boy**	*mus-com AY*
—	5	3	**Go West, Young Lady**	*mus-wes AY*
—	8	5	**Great Guns**	*com AY*
3	15	2	**H. M. Pulham, Esq.**	*nov AY*
—	2	1	**Harvard, Here I Come**	*com A*
—	4	1	**Hay Foot**	*mus-war-com AYC*
—	11	1	**Hellzapoppin**	*mus-com A*
5	14	2	**Hold Back the Dawn**	*mel A*
1	10	10	**Honky Tonk**	*mel A*
—	3	2	**Honolulu Lu**	*mus-mel A*
—	—	—	**Hot Spot** . . . See "I Wake Up Screaming"	
11	8	1	**How Green Was My Valley**	*nov A*
1	5	—	**I Killed That Man**	*mys-mel AY*
2	15	2	**I Wake Up Screaming**	*mys-mel A*
—	13	5	**International Lady**	*war-dr AY*
—	9	8	**International Squadron**	*war-mel AY*

A	B	C		
4	18	—	It Started with Eve	*rom AYC*
—	6	1	Jail House Blues	*mus-com A*
—	4	1	Jesse James at Bay	*mus-wes AYC*
—	9	1	Joan of Paris	*war-mel A*
—	6	—	Joe Smith, American	*war-dr AY*
—	7	4	Johnny Eager	*cri-dr A*
—	2	1	Kansas Cyclone	*wes AYC*
1	10	5	Kathleen	*rom AYC*
—	9	6	Keep 'em Flying	*war-com AY*
1	8	4	Kings Row	*dr A*
—	6	1	Laburnum Grove	*dr AY*
—	7	1	Lady for a Night	*mus-dr A*
—	3	1	Lady Has Plans, The	*war-com A*
—	4	—	Land of the Open Range	*mus-wes AYC*
—	1	2	Law of the Timber	*mel AY*
—	2	2	Lone Rider Fights Back	*mus-wes AYC*
—	4	1	Lone Star Vigilantes, The	*mus-wes AY*
1	7	3	Look Who's Laughing	*com AYC*
2	11	3	Louisiana Purchase	*mus-com A*
—	2	6	Mad Doctor of Market Street, The	*mel AY*
7	9	—	Maltese Falcon	*mys A*
—	2	1	Man from Cheyenne	*mus-wes AY*
1	14	2	Man Who Came to Dinner, The	*com A*
1	9	2	Married Bachelor	*com A*
—	3	4	Marry the Boss's Daughter	*rom AY*
—	2	2	Masked Rider, The	*wes AY*
—	5	2	Melody Lane	*mus-com AYC*
—	8	8	Men in Her Life, The	*dr A*
—	2	4	Mercy Island	*mel A*
—	2	3	Mexican Spitfire at Sea	*com A*
—	3	6	Mexican Spitfire's Baby	*com A*
—	4	1	Midnight Angel	*war-mel AYC*
—	1	2	Miracle Kid, The	*mel A*
—	5	2	Miss Polly	*com AY*
—	2	1	Missouri Outlaw, A	*wes AY*
—	1	6	Mob Town	*cri AY*
—	8	3	Moon Over Her Shoulder	*com A*
—	6	4	Moonlight in Hawaii	*mus-com AY*
—	8	5	Mr. and Mrs. North	*mys-com AY*
—	6	1	Mr. Bug Goes to Town	*car AYC*
—	6	—	Mr. Celebrity	*com AY*
—	2	6	Mr. District Attorney in the Carter Case	*mel A*
—	5	8	Never Give a Sucker an Even Break	*com AYC*
3	4	5	New Wine	*biog-rom AYC*
—	5	2	Niagara Falls	*com A*
—	9	2	Night of January 16, The	*mys A*
—	7	2	No Hands on the Clock	*mys-nov A*
—	3	—	North to the Klondike	*mel AYC*
—	5	3	Obliging Young Lady	*com AY*
—	2	2	Officer and the Lady, The	*cri A*
12	7	—	One Foot in Heaven	*dr AYC*
—	2	1	Outlaws of Cherokee Trail	*wes AYC*
—	4	2	Outlaws of the Desert	*wes AY*
—	3	2	Pacific Blackout	*mel AY*
—	3	4	Parachute Battalion	*war-mel AYC*
—	9	7	Paris Calling	*war-mel A*
—	—	3	Passage from Hong Kong	*mys AYC*
—	3	4	Perfect Snob, The	*com AY*
—	10	2	Playmates	*mus-com AYC*
1	4	5	Prime Minister, The	*hist-dr AY*
—	1	4	Public Enemies	*cri A*
—	9	3	Quiet Wedding	*com AY*
—	6	—	Red River Valley	*mus-wes AYC*
1	3	—	Remarkable Andrew, The	*fan-com AYC*
5	9	1	Remember the Day	*rom AYC*
—	4	—	Riders of the Badlands	*wes AYC*
—	6	1	Riders of the Purple Sage	*wes AY*
—	5	1	Riders of the Timberline	*wes AY*
—	6	—	Riding the Wind	*wes AY*
—	4	1	Right to the Heart	*com AYC*
—	2	4	Riot Squad	*mel A*
—	11	3	Rise and Shine	*mus-com A*
—	5	3	Road Agent	*mus-wes AYC*
—	7	—	Road to Happiness	*mus-dr A*
—	4	—	Royal Mounted Patrol, The	*dr AY*
—	2	4	Sailors on Leave	*mus-com AYC*
—	3	1	Salute to Courage	*war-mel A*
—	5	2	Sealed Lips	*mel A*
—	5	2	Secret of the Wastelands	*wes AY*
—	3	2	Secrets of the Lone Wolf	*cri AY*
1	11	4	Shadow of the Thin Man	*mys A*
—	2	10	Shanghai Gesture, The	*dr A*
—	3	4	Sing for Your Supper	*com AYC*
—	2	3	Sing Your Worries Away	*mus-com AY*
2	10	5	Skylark	*com AY*
—	7	1	Small Town Deb	*mel AYC*
1	5	12	Smilin' Through	*mus-rom AYC*
—	7	—	Son of Fury	*nov-mel A*
—	1	3	Sons of the Sea	*hist-dr AY*
—	1	11	South of Tahiti	*mel A*
—	4	—	Spooks Run Wild	*mys AY*
—	6	4	Steel Against the Sky	*mel AYC*
—	3	2	Stork Pays Off, The	*com A*
2	6	—	Story of the Vatican	*doc AYC*
1	6	3	Sullivan's Travels	*com-dr A*
2	10	4	Sundown	*war-mel A*
4	8	2	Suspicion	*dr A*
—	11	7	Swamp Water	*mel-nov A*
—	—	4	Swamp Woman	*dr A*
—	8	1	Swing It, Soldier	*mus-com AY*
7	7	—	Target for Tonight	*war-doc AY*
—	6	4	Tarzan's Secret Treasure	*mel AY*
1	11	2	They Died with Their Boots On	*hist-mel AYC*
—	1	6	This England	*war-dr A*
—	1	3	Three Cockeyed Sailors	*war-com AY*
—	7	4	Three Girls About Town	*com A*
—	2	2	Thundering Hoofs	*mus-wes AYC*
—	2	1	Tonto Basin Outlaws	*wes AYC*
—	3	5	Top Sergeant Mulligan	*war-com AY*
—	3	1	Torpedo Boat	*war-mel AY*
—	5	3	Treat 'em Rough	*war-mel AYC*
—	5	1	Tuxedo Junction	*com AYC*
—	4	2	Twilight on the Trail	*mus-wes AYC*
1	6	10	Two-Faced Woman	*rom A*
—	1	2	Underground Rustlers	*wes AYC*
—	6	5	Unexpected Uncle	*com AY*
1	11	1	Unfinished Business	*com AY*
—	8	8	Unholy Partners	*mel A*
—	4	1	Valley of the Sun	*wes AYC*
—	7	1	Vanishing Virginian, The	*com-dr AYC*
—	3	—	Voice in the Night, The	*war-mel A*
—	3	1	We Were Dancing	*com A*
—	5	7	Weekend for Three	*com A*
1	13	4	Weekend in Havana	*mus-com AY*
—	1	4	West of Cimarron	*wes AYC*
1	9	6	When Ladies Meet	*dr A*
—	4	2	Wild Bill Hickok Rides	*wes AY*
—	4	7	Wolf Man, The	*mys AY*
—	4	—	Woman of the Year	*com A*
2	15	1	Yank in the R.A.F., A	*war-rom AY*
—	1	2	Yank on the Burma Road, A	*war-dr A*
1	8	8	You Belong to Me	*rom A*
5	13	—	You'll Never Get Rich	*war-mus-com AY*
—	7	7	You're in the Army Now	*com AYC*
—	4	2	Young America	*com AYC*
—	5	1	Zis Boom Bah	*mus-com AY*